MARKETING MANAGEMENT

Analysis and Planning

John A. Howard

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By JOHN A. HOWARD

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PREFACE

This book is intended as a text for advanced undergraduate marketing courses, the introductory graduate marketing course, and executive development programs. Executives will find it useful for individual study. It can aid company researchers in designing marketing research studies.

The content has four characteristics that should be noted. It is managerial and this implies two things: a management point of view and a decision orientation. Ideally, both the management and public policy viewpoints should be presented, but to attempt both in one course may lead to a satisfactory treatment of neither. It is more decision than research oriented. Second, the text is analytic. It sets forth a definite way of looking at marketing problems and attempts to present concepts that are appropriate and useful in the sense of being qualitatively or quantitatively measurable. Third, a certain course background or business experience is needed. The book assumes that the reader has had an introductory course in accounting and economics. Specifically, he should know something of the problems of cost allocation and have a nodding aquaintance with marginal analysis as it is usually presented in the first course in economics. A statistics course is helpful but not essential. Finally, the book incorporates developments in the behavioral sciences, but it assumes no previous work in these areas.

Five principal changes have been incorporated in this revision. First, an attempt is made to treat demand in a relevant, systematic way. Demand in large measure constitutes the *marketing problem*. Marketing owes a vast debt to economic theory for a number of contributions, such as rational decision, cost theory, competitive relations, location theory, and the superstructure of demand theory which rests upon the theory of choice. With respect to the theory of buyer choice, however, which is the central feature of demand analysis, its contributions have been limited. Hence, we have lacked the necessary analysis to deal

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with the central problem of marketing, and Chapters 3 and 4 represent an attempt to remedy this state of affairs.

The teacher may ask whether it is necessary to expose nonmarketing majors to the unfamiliar, fairly demanding behavioral material of Chapters 3 and 4, particularly if he is confronted in class with the student complaint, "Look, I intend to be a production specialist, not a marketing specialist." If the alternative to the content in Chapters 3 and 4 were a simple, comprehensive, partially tested theory that presented a plausible rationale for buyer behavior, the teacher's skepticism would be justified, but the alternative now is a limited amount of data about how buyers do behave and no plausible rationale for this behavior. It is extremely important that the nonmarketing student obtain the best available understanding of buyer behavior because the character of buyer behavior largely determines the unique features of the task of managing the marketing operation. Thus, if the student is to understand the marketing operation so that later in his position in a company he can appreciate the role of the marketing department and work effectively with it, he must have a knowledge of what buyer behavior is and why it is what it is.

Only a limited amount of the available empirical evidence supporting parts of the model is included. A comprehensive summary of the evidence and references to the basic sources can be found in John A. Howard, *Marketing: Executive and Buyer Behavior* (New York: Columbia University Press, 1963), Chapters iv and v.

Second, the analysis of the structure of distribution and location theory are brought together in order to provide a fuller understanding of the complex nature of marketing channels. The structure of distribution has been the focus of much of the traditional marketing literature, but the theory is still pitifully weak. Location theory offers one way of treating the problem of marketing channels more systematically.

Third, an introduction to organization theory has been included, first to explain organizational buying behavior, and then, as a direct aid in making marketing decisions. The theory enables us to explain many phenomena that we observe in a company. Interdepartmental conflict becomes more reasonable, for example. Light is thrown on the critical problem of the nature of organizational goals, their source, their significance, and the limits on how they may be modified. Also, we can begin to identify those features of organization that are unique to the marketing operation and that therefore deserve particular attention in marketing courses. Modern organization theory is not all that we would like; in fact, it is several theories and has been referred to as "a term in search of a theory." Progress will be faster if we work with the tools that we have instead of waiting until better tools are forged.

Fourth, planning instead of decision is taken as a basic point of view, and concepts from organization theory aid in the exposition of the planning process. Planning inherently places emphasis upon the temporal features of marketing decisions, which probably leads to better decisions, and it also introduces the student to the nature of the company planning process, which more and more represents the central nervous system of the corporation into which the marketing operation must be integrated.

Finally, following logically out of planning is the distinction between short-run and long-run decisions and the necessity to deal explicitly with the latter. Investment theory is introduced as the basis for developing the concept of the long-run decision. The classification of decisions according to their temporal implications is another way of obtaining order which enables us to deal more systematically with the subject of marketing management.

Marketing is a complex subject and tools of analysis are essential to an understanding of it. The available tools fall far short of ideal, but basic research is being directed toward adding to this knowledge. The stuent and practicing executive can benefit from using the meager tools we do have. The acquisition of this facility like all learning depends upon practice in using the tools in problem solving. A variety of business cases has been the usual means of providing this problem-solving experience. Also, business games, both computer and noncomputer, have become useful and popular of late. Whether either of the means, cases or games, will suffice in the future is an open question. In the past the paucity of analytic tools left us no choice in our teaching but to be broad in coverage, that is, to include a variety of industries, a number of types of decisions, etc. The growth in the amount of analytic tools, however, is offering us a new alternative which is to provide depth of analysis, and we will be forced to choose between these alternatives of breadth and depth. I opt for the latter, and I am not at all sure that either cases or games will permit this depth by providing the rich detailed facts that characterize the functional and organizational features of managing the marketing operation in practice. To meet management's needs I believe that we must develop the means of providing experience in problem solving by depth of analysis in the context of a morass of facts.

A number of years ago Professor Harold J. Leavitt of Carnegie Institute of Technology, then a colleague at the University of Chicago, encouraged me to look into the field of social psychology for ideas that might explain marketing phenomena. I am deeply indebted to him not only for the encouragement but also for the form of that encouragement as well: a psychological problem irrespective of its source was always a challenge to him and to explore some of the problems from my own field with him was an ideal educational experience. Social psychology is useful in itself, but I find it strategic both substantively and methodologically in exploring other behavioral sciences.

Glenn B. Reed, an antitrust attorney with the firm of Buchanan, Ingersoll, Rodewald, Kayle and Buerger of Pittsburgh, Pennsylvania, reviewed Chapter 9 and made suggestions for bringing it up to date. I am grateful to him for his technical competence and his high standards of intellectual integrity.

I am indebted to a number of friends and former colleagues at the Graduate School of Business, the University of Pittsburgh. Among these was Professor James A. Boness, who was helpful with some problems of investment theory. Professor Albert W. Frey contributed to Chapter 13 and was a constant source of encouragement. Professor Gerald S. Albaum, in teaching some of the material in the book, was a persistent and demanding critic. Mr. Jagdish Sheth, Research Assistant, was a source of many ideas, a good critic, and a splendid helper with some of the essential but less interesting tasks that publication inevitably entails. Dean Marshall A. Robinson relieved me of the burden of committee assignments and most willingly provided the services that were required. I am also grateful to him for the stimulating environment the School now provides. An author quickly finds that a competent librarian can contribute to his effort and immeasurably to his equanimity. The School is fortunate in having on its staff Miss Glenora M. Edwards, a librarian with exceptional competence and a spirit of helpfulness and promptness. Miss Rose M. Rosso with charm, proficiency, and patience saw to it that all clerical needs were met.

With this quality of support, the book should not contain errors; but insofar as it does, they are mine.

John A. Howard

Sunapee, New Hampshire
August 1, 1963

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PART I

Nature and Scope of Marketing Management

Chapter 1

INTRODUCTION

THE ROLE of marketing management in our economy is becoming increasingly important. As a result, there is a growing interest in marketing management as a college course of study and as a career. American business is budgeting tremendous sums for marketing, and the status of the marketing executive appears to be constantly rising. This, together with the encouragement given today to marketing practitioners to experiment with quantitative techniques and methods of the behavioral sciences, and generally to exercise fully their creative imagination, has made management of the marketing operation attractive to people gifted with imaginative minds.

Marketing management can be a fascinating subject to study, if for no other reason than the fact that it is concerned to such a large extent with the study of people. There is a challenge in learning how executive decisions should be made to best meet the needs of consumers. In his study of buying behavior, the student can bring to bear all his knowledge of economics, psychology, sociology, mathematics, statistics, and electronic data processing.

As a career, marketing management provides full scope for talent and imagination of a high order. The marketing executive receives not only ample encouragement to find new insights and new ways of solving problems, but he also receives correspondingly large rewards for his success. He deals with problems that are of crucial importance to his company. Finally, he contributes to social welfare, for marketing is the means by which the scientist's work in the laboratory finds its way into the fabric of society in the form of products and services. Until marketing secures acceptance of the achievements of modern technology, they are of little benefit to the consumer.

MARKETING MANAGEMENT DEFINED

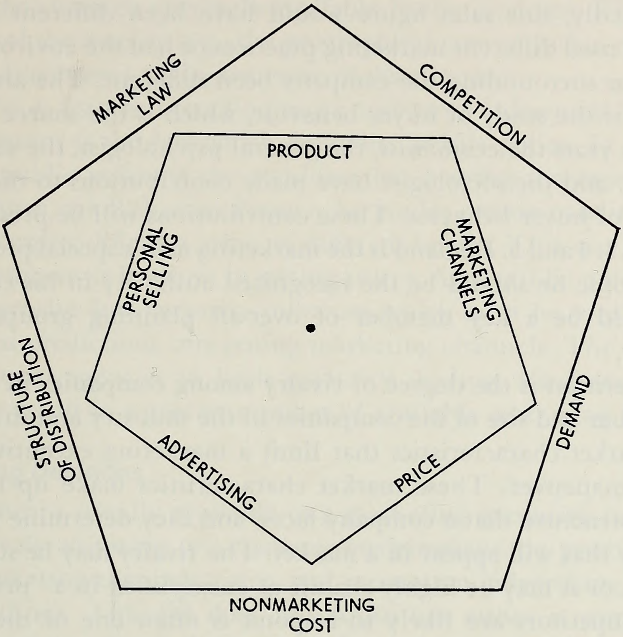
One of the fundamental aspects of the decision-making process is the distinction between the controllable and the uncontrollable. The decision maker must distinguish those things he can control from those he cannot and to which he must therefore adapt. The elements that a marketing executive finds to be more or less uncontrollable are the social, political, and economic features of the environment of his company. The controllable elements are the marketing practices of the company; they are the means by which a company adapts to its uncontrollable environment. The marketing executive's task is to adapt creatively to a changing environment by adjusting these means in such a way as to further his company's interest. Thus, the three central elements of his task are: the *environment*, the *means* by which adaptations can be made, and the *company's interest*. Profit is accepted here as a tentative definition of the company's interest. (The limitations of profit, except for the organizational implications, will be discussed in Chapter 2. The organizational implications will be dealt with mainly in Chapter 15.)

Figure 1 illustrates the heart of marketing management's task, which is the creative adaptation by a company to its changing environment. The outer pentagonal form represents the social, political, and economic enviroment within which the company operates. The sides of the pentagon indicate areas which to the marketing manager are usually uncontrollable. The inner pentagonal form represents the company, and its sides indicate the means by which a company can adapt to its environment. Each part of the environment may exert influence on the company, and the marketing executive must use the means of adaptation to guide the firm toward its profitable opportunities. Graphically, the marketing manager's task is to obtain the best possible "fit" with these means. The environment is subject to continuous change, which in turn requires corresponding modifications of marketing practices if the company is to survive.

The environmental changes can be predicted only with considerable uncertainty, and therefore any estimates of their effect upon the company may be highly unreliable. For instance, if reputable economists predict a 10 per cent decline in gross national product for the

FIGURE 1

THE CENTRAL ELEMENTS OF MARKETING MANAGEMENT


MARKETING LAW
COMPETITION
PRODUCT
PERSONAL SELLING
MARKETING CHANNELS
STRUCTURE OF DISTRIBUTION
DEMAND
ADVERTISING
PRICE
NONMARKETING COST

coming year, what is likely to be the effect on company sales? The marketing manager cannot predict with complete certainty. To complicate matters further, we may not know even after changes have occurred just precisely what took place. Say that, for example, company sales were down 5 per cent last year over the previous year; however, since a large number of things happened last year, the cause of the decline is not clear. Put technically, even the historical data of the marketing manager may not be valid, much less his predictions. It is small wonder, then, that so much effort and funds are invested in marketing research in order to obtain better information.

Marketing Environment

Uncontrollable features of the environment are demand, competition, nonmarketing costs, structure of distribution, and the law. The decision theorist labels these "elements of the state of the world." In practice the company may be able to exert some control, but for the sake of clarity of analysis it will be assumed for now that these dimensions are uncontrollable.

Demand relates to sales volume for a given period of time, with given marketing practices, and under given environmental conditions. For instance, the sales of Company A last year were $1,259,613. Undoubtedly, this sales figure would have been different had the company used different marketing practices or had the environmental conditions surrounding the company been different. The analysis of demand is the study of buyer behavior, which is the source of sales. In recent years the economist, the general psychologist, the social psychologist, and the sociologist have made contributions to the understanding of buyer behavior. These contributions will be presented in Chapters 3, 4 and 5. Demand is the marketing man's special province—on this topic he should be the recognized authority in his company. He should be a key member of over-all planning groups in the company.

Competition is the degree of rivalry among companies in terms of the number and size of the companies in the industry and in terms of other market characteristics that limit a marketing executive's freedom to maneuver. These market characteristics make up the competitive structure that a company faces, and they determine the kind of rivalry that will appear in a market. The rivalry may be stable, for example, or it may be highly chaotic as exemplified in a "price war." How competitors are likely to respond is often one of the critical considerations in a marketing manager's decision to select a particular course of action.

Marketing decisions usually involve some estimate of nonmarketing costs. The marketing manager, however, is concerned only with those cost outlays that are affected by his decisions. For example, assume the problem is to decide whether to establish an advertising budget of $100,000 or $125,000. At least two costs are involved: (1) the cost of the advertising, which is a marketing cost; and (2) the additional cost of producing the quantity of product necessary for the additional sales volume resulting from each of the advertising expenditures, which is a nonmarketing cost. Both costs are affected by the marketing manager's decision, but only one is controllable from his point of view. Just as there are several significant concepts of demand, there are numerous cost concepts, each one having its use. Moreover, in dealing with cost, the marketing manager usually must rework the conventional cost data found in his company in order to make the data useful for his purposes.

Another uncontrollable feature is the structure of distribution—the alternative routes that goods may take physically and/or the transactions consummated in obtaining the flow of goods from the seller (manufacturer, wholesaler, or retailer) to the ultimate user. From the point of view of the company, the structure of distribution consists of the channels currently available in the economy. The spatial features of the market, e.g., the geographical concentration of buyers, are key dimensions of the structure of distribution.

Finally, a feature becoming more and more influential in executive decisions is the law which embodies public policy. In some decisions, public policy is the consideration bearing the most weight. For instance, the Robinson-Patman Act under certain conditions prohibits charging different prices to different buyers. This may seriously limit a company's freedom in setting prices. Also, public policy exerts an unobtrusive but pervasive influence which must be considered in long-term predictions concerning marketing channels. The efforts of the antitrust agencies to limit exclusive dealing, for instance, will probably result in a greater number of available marketing channels.

Marketing Decisions

The means usually available to a marketing executive in his task of creatively adjusting to a dynamic environment are product variation, marketing channels, price, and promotion (advertising and personal selling). This list does not constitute either a complete or mutually exclusive set of categories, but it is adequate for now.

These courses of action which a marketing manager may take will be discussed in the order we have just listed. Two of the typically more basic and long-term decisions—product variation and marketing channels—are presented first. The decisions of price, advertising, and personal selling are more meaningfully discussed in the context of a given product and of given channels. To simplify our study, each decision will be examined separately; however, in practice, these decisions are usually interrelated to a high degree, and they may not be examined in the order presented here. Business practice among the manufacturers of industrial products suggests that when things go wrong, as indicated by low net profits, an executive typically examines factory costs first, and then wonders whether the existing price is satisfactory.[1] Next, he concerns himself with product quality, and finally, he investigates his selling expenses. However, clarity and coherence are gained by treating the topics in the order that has been suggested.

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[1] James W. Culliton, *The Management of Marketing Costs* (Boston: Graduate School of Business Administration, Harvard University, 1948), pp. 127–43.

Product Variation. Product decisions, often called merchandising, are essentially of two types. Some decisions are concerned with change of an existing product to conform more nearly to the demands of the market. These changes may be superficial or they may be fundamental, e.g., the use of a new package as opposed to a revolutionary redesign of the product. Other decisions concern dropping or adding an item to the product line. These decisions are common but nevertheless serious for most firms, since few companies in the United States produce a single product. A marketing manager must be constantly on the alert to exploit new products and to avoid continuing an unprofitable product.

Marketing Channels. All companies must choose from the marketing channels available in the structure of distribution the set of channels they think will be most effective. Even retailers have a choice between mail-order and "in-store" selling. A manufacturer typically has a great variety of alternatives open to him. He may sell direct to the user of his product, he may decide that it is more profitable to sell directly through a retailer, or he may even decide to sell through the wholesaler who will in turn sell the product to retailers. The possibilities are almost unlimited, and selecting the correct channel requires careful analysis, particularly since the decision usually involves a heavy investment and goes far in fixing the rest of the marketing plan. The spatial aspects of the structure of distribution, e.g., the geographical concentration of buyers in each market, will make a great difference in determining the best set of channels for a particular situation.

Prices. Prices must be set. Competitors' prices usually establish significant limits to the range of choice, but there is some discretion. There are many pricing problems. Not only must a number of products be priced, but if a marketing channel other than direct-to-user is employed, consideration must often be given to the prices set at each level of the marketing channel. Finally, some buyers may receive a different price, or discount as it is usually called, according to the quantity they purchase. Besides quantity discounts, many other special pricing problems exist.

Promotion. Most companies must use some type of promotional effort. In many companies promotion decisions require much of the marketing manager's time. Promotion will be treated here primarily as a problem in market communication: the function of both types of promotion—advertising and personal selling—is to provide potential buyers with information about the product. A salesman may well perform other functions, such as delivery and repair, but, to simplify, he will be viewed here as a conveyer of information. Thus, advertising and personal selling are alternative methods of performing the function of conveying information, but a particular combination of the two may be more effective than either of them alone.

Advertising is concerned with deciding what media to use (newspapers, radio, television, direct mail, billboards, car cards, point-of-purchase display, etc.); the frequency with which the advertisements will appear (daily, weekly, monthly, etc.); and the message to be employed (this involves the artwork and copy prepared for printed media and the commercial prepared for radio and television). Personal selling deals with the selection, supervision, and training of salesmen; the allocation of salesmen to territories; and the evaluation of salesmen.

THE PRACTICE OF MARKETING MANAGEMENT

A marketing executive in creatively adapting to his environment analyzes his problem and then solves it by choosing the best solution. Perhaps, we should ask, however, "How did he know he had a problem in the first place?" since in a large company it is frequently by no means obvious that a problem exists. Through his control devices, which will be discussed below, the marketing executive learns he has problems. Another question asked is: "Does he make the decision without regard to the decisions that have been made before?" What price is best, for example, is probably influenced by the other marketing decisions that were made earlier; and equally important, the marketing operation of a company cannot carry out its work completely independent of the rest of the company.

Making Decisions Is Really Planning. A decision applies only to the future. Also, as management has become increasingly sophisticated, formal planning throughout the company has become common practice. For example, a series of decisions will be made for the coming year about the nature of the product of the company, channels of distribution, prices, advertising, and sales force; all these taken together become the marketing department's plan of future courses of action. Then, this plan is combined with the plans of all other departments in the company to provide an over-all company plan. Consequently, most of the major decisions are made once a year—at planning time.

Let us examine how the marketing executive goes about analyzing his problem and deciding which course of action is the best solution.

Solving Marketing Problems

We shall assume that our sales are declining in the New York area, and, further, that we know a price cut is the most effective solution. The problem then is to select a new price which is lower than the $1.00 per unit we have been charging. The solution involves three steps: (1) formulating the alternatives, (2) estimating the consequences of each alternative, and (3) choosing the best alternative.

Formulating the alternative courses of action in our example consists of selecting a number of lower prices. Let us assume that we judge the only feasible lower prices are 95, 90, and 85 cents. Formulating alternatives is usually a highly creative psychological process and not as yet well understood. From his experience, an executive has developed some hunches, beliefs, or a theory of how his market operates, and this theory serves to guide him in selecting alternatives. Managing the marketing operation of a company is like driving an automobile. When it does not run, you do certain things to it; you do these things and not something else because you have some hunches, some beliefs, or a theory of how an automobile works.

You are driving merrily along the highway and the motor of your car dies. Do you stop and suddenly begin taking off the right rear wheel? Not likely. You have a belief that it is either the fuel system or the ignition system; the right rear wheel, you suspect, has absolutely nothing to do with either of these. You glance at the gas gauge as one check on the fuel system. Also, you glance at the ammeter as a check on the ignition system. Your theory on the operation of the car tells you that each of these—the fuel gauge and the ammeter—is related to the fuel and ignition systems, respectively. But you may say that this is no theory; it is a fact. Have you ever traced the connections of these gauges to be sure they are related to the fuel and ignition systems? Probably not. If not, you do not know as a fact that they are so related.

The higher in the company an executive is, the more fully articulated is his theory since his job is more complex and he must direct others in carrying out complex tasks, both of which require an articulated theory.

The consequences of each of the alternative prices in the example above can be estimated in a number of ways: (1) The executive may refer to the results of an instance where the price was cut on a similar product. (2) He can direct his market research department to ask a sample of buyers how they would respond if he changed the price on his product. (3) He can actually experiment by taking four similar small cities, charging the alternative prices respectively in three of them, leaving the price at $1.00 in the fourth market, and then comparing the volume of sales in each of the four markets.

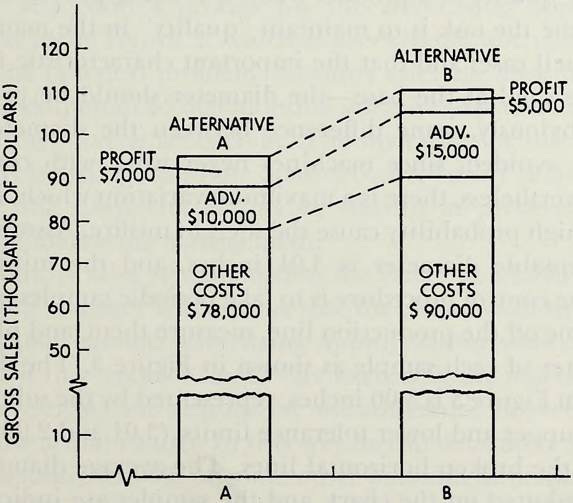
Marketing research plays an important role in marketing management. In a sense much of this book is devoted to market research—what information should be collected, how it can be collected, and how it should be used; but to do justice to this vital segment of marketing knowledge would require a separate course.

Having formulated the alternative courses of action, and having estimated the consequences of at least the most feasible of these alternatives, the remaining step in the problem-solving process is to choose the best alternative. What do we mean by the *best* alternative? An illustration can be helpful here.

Suppose that two alternative advertising appropriations are under consideration by a small manufacturer of machine tools. Alternative A is an annual appropriation of $10,000, and B, $15,000. Sales costs and such other costs as production costs are estimated as indicated in Figure 2. Appropriation A ($10,000) produces gross sales of $95,000 and a profit of $7,000. Appropriation B ($15,000) produces gross sales of $110,000 and a profit of $5,000.

FIGURE 2

ESTIMATED CONSEQUENCES OF DIFFERENT ADVERTISING APPROPRIATIONS



If the manufacturer wants maximum sales, the answer is simple: follow the course of action which will yield the greatest sales volume. If he wants maximum profit, then he must incorporate the cost aspect of each alternative. Thus it is impossible to go further until the executive has specified what he wishes to accomplish—the company's interest—usually termed *objectives* or *goals*.

If it is profit the executive wishes to accomplish, and we assume in this book that it is, a set of profit-maximizing concepts are available which can be most helpful to him. These concepts, which serve as the foundation of most work in business economics, operations research, and management science, follow in Chapter 7. Using profit as the criterion of choice in making decisions is a complex procedure. One of the issues encountered in using it will be discussed in Chapter 2. Whether profit *is* or *should be* used by an executive in choosing among alternative courses of action in lieu of some other objective also involves complex issues. These will be dealt with in Chapter 15.

Control of Marketing Operation

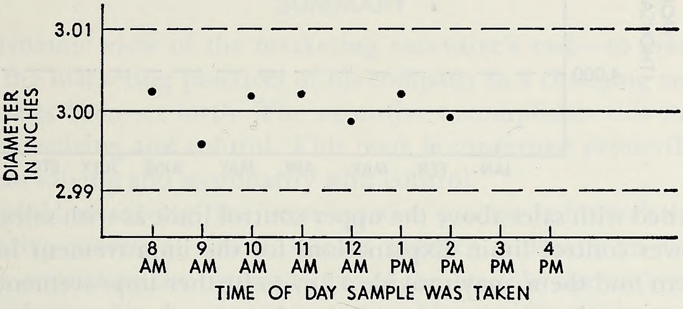
In solving the price problem above, we began by assuming there was a problem. Problems are being created continually by a rapidly changing environment, and recognizing or identifying problems quickly is difficult, particularly in large companies. The "control system" concept is helpful in identifying problems.

"Control" in a company is analogous to industrial quality control, which can be illustrated by the control chart that is used in maintaining the quality of a product when it is being produced in the factory. Assume the task is to maintain "quality" in the manufacture of artillery shell cases and that the important characteristic is the diameter of the shell at the base—the diameter should be precisely 3.00 inches. Obviously, some difference between the diameter of shells cannot be avoided, since machines never work with complete precision. Nevertheless, there is a maximum variation which, if exceeded, will with high probability cause the shell to misfire. Assume the maximum acceptable diameter is 3.01 inches, and the minimum, 2.99 inches. The control procedure is to take periodic samples of shell cases as they come off the production line, measure them, and plot the average diameter of each sample as shown in Figure 3. The desired shell diameter in Figure 3 is 3.00 inches, represented by the solid horizontal line. The upper and lower tolerance limits (3.01 and 2.99) are represented by the broken horizontal lines. The average diameter of each sample is plotted on the chart, and the samples are indicated by the dots.

It can be seen that the diameter of one sample did exceed the control limits, which suggests to the machine operator that something has gone wrong and that he must repair, or at least readjust, his machine. Until this particular sample attracted his attention, the machine operator was free to concern himself with other tasks, confident that if something went wrong with the machine he would automatically be informed. In the area of production management, standard cost systems are widely used in the control process.

FIGURE 3

Quality Control Chart for Artillery Shell Cases

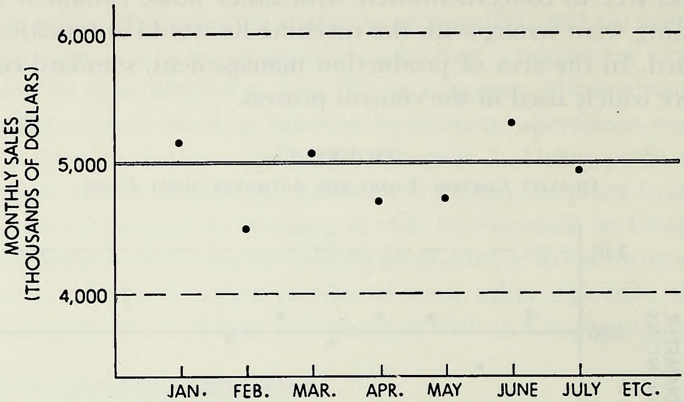


Similarly, the marketing manager should find it unnecessary to scrutinize his whole marketing operation continuously. He, too, should be free to concentrate on some specific problem or to plan for the future. His control process for the advertising appropriation could appear as in Figure 4, which is an extreme but useful simplification of the practical problem. Monthly sales are measured on the vertical axis. Although $5,000 monthly sales are expected, a variation of $1,000 either way is acceptable. The operation of the marketing control chart is analogous to the quality control chart (Figure 3). Unfortunately, the simplicity of quality control in production is not duplicated in marketing management.

If the monthly sales remain within the range of $4,000 to $6,000, the marketing manager will assume that his estimates of the effectiveness of a $5,000 annual advertising appropriation were reasonably correct. But if the "control limits" are exceeded, the marketing manager will investigate the reasons for the difference between his estimates and the actual results. In this way he can determine whether to continue spending $5,000, or some other amount, annually. In practice, the marketing manager would probably be concerned only if sales fell below the lower control limit, and he would be delighted if sales exceeded the upper control limit, irrespective of the extent. Nevertheless, from the standpoint of scientific management he should be just as

FIGURE 4

Marketing Control Chart



concerned with sales above the upper control limit as with sales below the lower control limit. Explanations for the improvement in sales, if he can find them, may provide a key to further improvement.

The examples illustrate the two key features of any control system; namely, (1) a criterion for evaluating performance and (2) an automatic warning device, or "feedback," as it is sometimes called. It will be recalled that the criterion used in the simplified marketing example above was total monthly sales. Obviously, there are many possible criteria, and the appropriate criterion will vary with types of marketing problems. A marketing manager's effectiveness in large measure will depend upon his ability to formulate measurable criteria of performance for each of his areas of responsibility and at all levels in the marketing organization. Marketing research is often required to perform the feedback function. If the situation represented by Figure 4 involved the manufacturer of a consumer's product selling to retailers, some feedback for the monthly sales information would be necessary. The manufacturer could not use his own sales figures because changes in distributor inventories would invalidate them as a measure of sales at the retail level.

Another feature of the control process has very real significance. The deviations between actual and projected results may occur for either of two reasons: (1) the marketing manager failed to predict environmental changes correctly, or (2) the decision of the marketing manager was improperly executed. To illustrate improper execution of a decision, the $5,000 advertising appropriation may not have been spent most effectively. The media selected by the advertising manager could have been inferior for the purpose, or poor copy could have been employed. On the assumption that the estimate was correct, a comparison of the projected results of the decision with the actual results can serve as a device for evaluating the performance of subordinates. Control in this sense is especially important in managing salesmen; the complications encountered in disentangling the reasons for differences between actual and projected results are especially well illustrated in the discussion of evaluating salesmen in Chapter 14.

SUMMARY

A dynamic view of the marketing executive's task—to creatively adapt the marketing practices of his company to a changing environment—has been set forth. The executive accomplishes this through problem solving and control. This book is concerned primarily with problem solving and secondarily with control.

In problem solving, the most creative process is formulating the alternative courses of action. Market research is usually an essential tool in estimating the consequences of the feasible alternatives. The profit criterion for choosing among those alternatives will be explored in the next chapter.

In Chapters 3 to 9 each of the phases of the environment—demand, competition, cost, structure of distribution, and the law—will be examined. To show the concepts of profit-maximizing, demand, competition, and cost (Chapters 3 to 7) will be discussed with the simplifying assumptions that the company sells directly to the user of its product, that its users are located in one place geographically, and that the law does not limit marketing action. Following this, the complications posed by the structure of distribution (Chapter 8) and the law (Chapter 9) will be presented. Equipped with certain concepts from these chapters, the problems involved in each of the different areas of marketing decision (product, marketing channels, price, advertising, and personal selling) will be discussed in Chapters 10 to 14. Finally, Chapter 15 is devoted to integrating all areas of marketing activity and to showing the influence of company organization upon the marketing plan.

Chapter 2

PROFIT AND PLANNING

DECISIONS are made to achieve some end—some objective—and this end is the criterion against which alternative courses of action are measured. The criterion of profit is used in this book. It needs careful definition, but we can be temporarily satisfied with the statement that the correct criterion is maximum expected long-term profit. An attempt will be made to make this criterion meaningful as the basis for marketing decision, but before going ahead it might be useful to name alternative critera; profit is such an obvious criterion that not many people would immediately think of alternatives.

Share of market is sometimes used as a criterion of decision. That course of action which contributes most to the size of the share of market is considered "best." Its weakness becomes apparent when applied to determining the size of the advertising budget. If the advertising dollar is effectively spent, a larger budget should usually increase the share of the market, providing competitors do not do likewise. Taken literally, the share-of-market criterion would result in an almost unlimited expenditure on advertising which is a practice that almost anyone would question. For instance, a company first in the field with a new product usually finds that as new competitors appear, a profitable course of action is to plan to lose share for a time. The company that first introduced a new cosmetic after World War II continued to have 90 per cent of the market for about four years, and then its share began to decline. The absolute sales of the company, however, had been rising continually. A marketing consultant advised it to lose market share intentionally because he believed the company could not hope to maintain its share profitably, since a number of competitors had also developed the same kind of product.

The absolute volume of sales as an alternative criterion encounters much the same difficulty in practice as share of market. A variant of the absolute-volume-of-sales criterion is "beating last year's sales figures," but when general business conditions are declining, the use of this criterion can be a serious mistake.

A third criterion is to maintain the *status quo*—the amount spent on personal selling, for instance, will be the same this year as it was last year. Companies using this criterion would, after a period of years, find themselves in financial distress because a dynamic economy requires adjustment.

Finally, "the maximization of consumer satisfaction" is sometimes alleged to be the purpose of marketing activity. This confusion in the marketing literature on the role of profit has arisen because writers do not carefully distinguish between company and social viewpoints. The use of consumer satisfaction alone as a criterion for marketing decision in any meaningful sense would soon throw a company into the bankruptcy courts. It would place no limit on the value given the consumer, since the consumer would like all the satisfaction that he can get for a given price. In fact, he would be delighted if he were offered a Cadillac at a Ford price. Unfortunately, it costs more to produce a Cadillac.

The concept of a criterion of decision should not be confused with that of a measure of performance used in a control system as discussed in Chapter 1. Share of market is probably one of the most widely used measures of over-all marketing effectiveness or performance.

The benefits of a clear-cut criterion of choice are twofold. When an executive views marketing problems in terms of the profit criterion, he is more likely to seek out all the *relevant* features of the problem at hand. This is essential to the development of effective marketing practices in a company. The common failure to consider all facets is suggested by one of the more competent studies of marketing practices.[1] This study points out the subtle tendency for marketing managers to think in terms of cost alone in controlling the marketing activities in their companies, rather than cost in relation to the income resulting from the cost outlay.

This "seeing the problem clearly" is a prerequisite to *measuring*—to estimating—the consequences of alternative courses of action.

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[1] James W. Culliton, *The Management of Marketing Costs* (Boston: Graduate School of Business Administration, Harvard University, 1948), p. 85.

The measuring techniques of marketing research can be more imaginatively developed and effectively applied if the profit criterion is used. Not long ago, for example, the head of one of the country's largest advertising agencies emphasized the need for marketing research people to be profit-minded. "Specifically, if the findings of research are profit-minded—then they are going the executive's way from the start."[2] Much of a company's research budget can be wasted through the failure of marketing researchers to see the problem in profit terms and to devise research techniques appropriate to the profit criterion.

In the following pages the profit criterion will be defined and the limitations put upon it by practice will be presented.

PROFIT AS A PRACTICAL CRITERION OF DECISION

It is easy to give lip service to profit, but to use it meaningfully as the guide for selecting from among alternative marketing policies in a realistically dynamic marketing situation is quite another matter. The profit objective is, in a few words, the *maximization of expected long-term profit*. Technically, the correct concept is "the maximization of the present value of the expected long-term profit series," but this introduces additional complexities that will be dealt with in Chapter 7. As the first step in giving content to this term, two questions should be answered: "Profit according to whose definition?" and "Profit when?"

Cost Concept

Although accountants and economists agree that company profit is equal to income minus costs, they sometimes differ as to which costs should be deducted in computing profit. This difference in point of view has implications for marketing decisions, and although these implications will be touched on briefly here, they will be spelled out in greater detail in Chapter 7.

First, there is the problem of associating the appropriate costs and income over time in computing profit estimates. In product development, for example, there is usually a lag between the cost outlay and the accural of resulting benefits. R. R. Deupree, board chairman of Procter and Gamble Company, has pointed out that research expenditures in the soap industry are being made currently on new products that may not appear on the market for another ten years. But once on the market, the product will probably continue to sell for a number of years. Let us assume that research on a product began at Procter and Gamble in 1950, that the product was placed on the market in 1960, and that it had a life of ten years. In assembling the cost data for this decision, the economist would emphasize the basic principle that a cost outlay should be charged against income only at the time the additional income resulting from the cost outlay is received. Under this principle no costs would be charged against profit until 1960 when revenue from the sales of the product began to occur; thereafter, a proportion of the accumulated costs would be charged against profit each year over the life of the product. Accountants, however, often charge research and development expenditures as current costs, so that current profits tend to be understated while profits occurring during the life of the product are overstated.

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[2] Marion Harper, Jr., "Making Business Decisions," *Journal of Marketing,* XV (1950–51), 58.

2 Second, there are two profit concepts: net profit and contribution to profit. Historically, the accountant has tended to use the net profit concept, but today he is beginning to accept the economist's concept of contribution to profit. It has been stated that the criterion of choice among alternatives should be profit and that profit is income minus cost. Some company costs, however, may be affected by a marketing decision, while others may not. Assume that the problem is to choose between two advertising expenditures: $50,000 versus $100,000. One alternative will increase costs at least $50,000, and the other, at least $100,000. Also, total production costs will be different because different quantities of product will be sold. Yet many costs will not change, irrespective of which appropriation is chosen. Executive salaries, for example, are very unlikely to change as a consequence. Expected contribution to profit is arrived at for each advertising expenditure by deducting from the additional volume of sales only those costs—roughly, the variable costs—that will be added as a consequence of the respective decision. The problem has been simplified by ignoring the cost of capital which will be discussed in Chapter 7.

The net profit concept, on the other hand, includes an allocation of overhead costs such as executive salaries, and these costs do not vary with the decision. Thus, when it is said that the profit criterion should be used in deciding among alternatives, *contribution to profit* is meant rather than net profit. *Marginal* income is a synonymous term.

Planning Horizon

The marketing executive should attempt to maximize the company's profits over the company's long-term *planning* horizon. The concept of a planning horizon is illustrated in the following example of one company's decision whether to add salesmen:[3]

> We must decide over how long a period to measure our additional costs and our additional profits. One year seems too short, because it does not give opportunity for the development of a new man or of the profits on his new accounts. On the other hand, ten years seems too long because of the very substantial risks involved over so long a period.
>
> The answer may lie somewhere between. It will depend upon the risks and opportunities in the particular situation. Let's say here that we decide to optimize our profits over a five-year period.
>
> It's not too hard to estimate the cost of adding a salesman. Just add his salary, bonus and traveling expenses plus any training costs or cost of extra supervision. Let's say the additional cost amounts to $50,000 over five years.

Figure 5 illustrates a marketing executive's estimates of the additional sales volume that might result from adding a salesman. A salesman, in his opinion, might add $10,000 in new accounts each year. Since it is an industry in which there is low customer mortality, at the end of five years he will have added $150,000 ($10,000 + $20,000 + $30-000 + $40,000 + $50,000) in sales.

Companies differ as to the length of their long-term planning horizons. There is probably a close relation between the length of period for which a company plans and the period which a company's top management considers appropriate for maximizing profits. In a sample of thirty corporations, eight companies regularly required five-year economic forecasts,[4] which suggests these companies plan ahead, fairly seriously, for at least five years. Finally, ownership's view of profits exerts an influence. In a company with a poor record of earnings management may not be able to use such a long period in maximizing profits because the stockholders want a higher current return.

Relation between Current Decisions and Future Sales

The marketing manager, in contemplating the various marketing alternatives and their effect on company profit, is concerned with two types of relations between current decisions and future sales. First, for such reasons as administrative convenience and buyer reactions, it is desirable to limit the number of changes in marketing policy. For example, a price is usually expected to continue for several months; therefore, in a dynamic world it must be something of a best average

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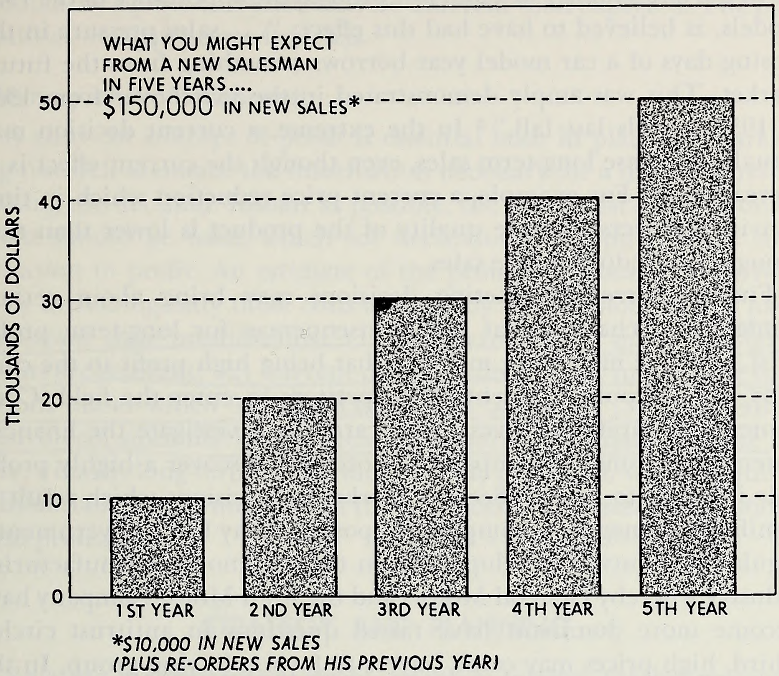
[3] S. E. Heymann, "Should You Increase Your Sales Staff," *Industrial Marketing*, December, 1955, p. 70.

[4] John A. Howard, "A Note on Corporate Forecasting Practices," *Journal of Business*, XXVII (1954), 101–5.

FIGURE 5

Cumulative Gain in Sales from Adding A Salesman



Source: S. E. Heymann, "Should You Increase Your Sales Staff," *Industrial Marketing,* December, 1955, p. 70.

price for the period. The inconvenience of changing the price can more than offset the additional profit that might result from the change.

Second, *current decisions* in part determine future *conditions;* thus in a sense future decisions are being made simultaneously with the current decision. In the first place, courses of marketing action that increase current sales also may tend to increase future sales. This is called a "complementary" relation. Current sales of building materials, for example, may result in increased sales of building materials in the future to the extent that present construction must be completed. The relationship is even more patently true in the case of a multiproduct firm selling related products. Sales of machinery today can yield sales of component parts for this machinery tomorrow.

On the other hand, instead of being complementary, the relationship may be competitive. Advertising expenditures to increase current sales may merely shift future sales to the current period, and the only effect will be a reduction in long-term profits by the amount of the advertising expenditure. Heavy price cutting by automobile dealers in the late summer of 1955, just prior to the appearance of the 1956 models, is believed to have had this effect: ". . . sales pressure in the closing days of a car model year borrows something from the future market. This was amply demonstrated in the switchover from 1955 to 1956 models last fall." [5] In the extreme, a current decision may actually decrease long-term sales, even though the current effect is to increase sales. For example, a current price reduction which in time convinces buyers that the quality of the product is lower than they thought can reduce future sales.

Finally, current marketing decisions may bring about certain *fundamental* changes that have consequences for long-term profit. First, effective marketing methods that bring high profit to the company may encourage potential competitors to enter the field. Companies with capital to invest often carefully investigate the financial statements of smaller companies in order to discover a highly profitable industry to invade. Second, marketing decisions which result in significant damage to a competitor's position may bring governmental regulation. Postwar developments in the automobile manufacturing industry whereby General Motors and the Ford Motor Company have become more dominant have raised questions in antitrust circles. Third, high prices may cause buyers to form a buying group. In the grocery industry, retail grocers often band together as a group to purchase from food manufacturers and are thereby able to secure lower prices. Each of these three fundamental changes in the market can have quite deterrent effects upon future profit.

Although the importance of these elusive temporal relationships is probably recognized by the marketing executive, they have more significance for the "correct" decision than is usually acknowledged. The relationships between current decisions and future sales are varied, complex, and usually difficult to predict. Nevertheless, they must be recognized in making a realistic appraisal of marketing alternatives.

Uncertainty Influences Profit Estimates

Uncertainty raises problems when profit is used in making marketing decisions. In selecting a course of marketing action, the executive inevitably attempts to peer into an inscrutable future, a future with many surprises. Sales may be made to certain unanticipated markets, or sales in other markets may fall below expectations. A competitor may have "stolen a march" on the executive by an unexpectedly effective advertising campaign, the development of an improved product, or a price cut. Costs may be different than expected. The possibilities of surprise are limitless.

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[5] *New York Times,* April 29, 1956, p. 8 F.

Summary of Profit Concept

A clear-cut concept of profit is essential both in planning marketing research to obtain the information necessary for a decision and in making the decision. Insofar as possible, the economist's definition of profit should be used, which for decision-making purposes is contribution to profit. An estimate of the profit contribution is arrived at by deducting only those costs affected by the decision. Profits have important time implications: (1) long-term rather than short-term profits are relevant; (2) current decisions determine, in part, the conditions under which future decisions will be made; (3) uncertainty is involved, since marketing decisions require a prediction of the future. Finally, long-term trends must also be projected, which requires substantially more information than is necessary for estimating short-term profits.

STRATEGY AND PLANNING

Relating the concepts of profit, problem solving, market research, and planning in a more precise way is facilitated by concepts from statistical decision theory.

In a real sense, information is the heart of the marketing problem. Uncertainty, which has already been emphasized, is the result of the lack of information.

The information problem appears in a number of forms. It is involved in the relation between the seller and the buyer. The buyer is seldom perfectly informed about the merits of one brand of product versus another. All buyers—consumers, middlemen, institutional and industrial buyers—must constantly search for information, and as the tempo of technological change increases, the search becomes more intense. This lack of information often makes it profitable for the seller to supply information through his advertising and personal-selling efforts. Consequently, decisions as to the amount of information, the kinds of information, and the media for transmitting this information constitute a major part of the marketing plan in many companies, particularly among the sellers of nondurable consumer products. This important part of the marketing operation will be discussed at length in the chapters devoted to buyer behavior, advertising, and personal selling. One task of the marketing executive is to get pertinent information about the buyers so that he can predict how they will respond. A question he must answer is: "How much of my budget shall I devote to getting this information?"

Also, market information is involved in competitive relations, particularly when there are only a few rivals. Every company attempts to place itself in as favorable a situation as possible vis-à-vis competitors. Obviously, one way of accomplishing this is to get information about competitors' marketing plans in order to counter them.[6] Time is required to formulate and carry out marketing plans, and if competitors' plans are known before they are carried out, they can be countered more effectively. For example, if a marketing manager learns that a competitor is introducing a new product, he is in a better position to meet the competitor's onslaught with an improved product of his own, a lowered price, or an increased promotional appropriation.

Conversely, of course, a marketing executive tries to keep information about his plans from his competitors. A delay in the introduction of a new product may be necessary to prevent "tipping off" competitors. A manufacturer of electrical equipment was asked to bid on a number of profitable contracts but felt it inadvisable because the specifications of the product required in bidding might reveal information to competitors about the recent improvements in the product. The company delayed bidding on any contracts until all improvements had been incorporated. The risk of competitors learning about the product improvements was believed to have offset the temporary loss in sales.

Precisely the kinds of information considered important for reasons of company "security" vary somewhat from industry to industry. The trade papers abound with illustrations. For example, General Motors Corporation in 1954 abruptly canceled its advertising contract with the *Wall Street Journal* because the newspaper has published the drawings and details of the 1955 Chevrolet.[7] The contract involved an annual expenditure of $250,000. President Curtice of General Motors later wrote to Mr. Kilgore, publisher of the paper, "For us it has been a very serious matter. In considering the infringement of our rights and its effects, two courses of action were available to us, namely, redress through legal action or discontinuance of our private business relations with you." [8] Mr. Curtice's objection was probably motivated by two considerations: fear that the sales of the 1954 Chevrolet would be adversely affected, and that the publicity provided a greater opportunity for competitors to counter and even to copy small details of the new Chevrolet model.

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[6] For a discussion of the use of detectives in obtaining information about company plans, see "Business Espionage," *Fortune,* May, 1956, pp. 118 ff.

[7] *Advertising Age,* July 19, 1954, p. 1.

The General Motors situation illustrates the most common piece of "security" information—new product plans. A survey by *Fortune* magazine of the executives of 59 companies concluded that the information most of them viewed as confidential related to "product research, production costs, sales and profit breakdowns by product, markups (or discounts), and salesmen's compensation." [9] One executive summarized the situation with, "We try to keep confidential any information that we ourselves would like to have from our competitors."

Finally, analogous problems of information exist between the seller and all other features of his environment, for instance, the government, as well as with buyers and competitors.

One of the serious limitations in understanding the marketing process is that no one has yet developed a set of concepts that enables us to discuss information systematically. (Statistical information theory deals only at the syntactic level.[10]) Any attempt to define information quickly reveals the inadequacy of our knowledge, although all of us know intuitively what we mean by it.

The problem of information is relevant here only insofar as it pertains to an executive searching for solutions to his marketing problems. Recent developments in decision theory are helpful, but as will be seen, they apply only to the third stage of the problem-solving process—that of choosing among alternatives—and do not deal with formulating the alternatives nor estimating the consequences of alternatives.

First, levels of information are defined in terms of the executive's situation: certainty, risk, and uncertainty. Second, an essential concept is that of a decision rule—a rule which tells the executive how to make his decision.

Under conditions of certainty—complete information—the executive thinks he *knows* the consequences of profit for each alternative. Decision rules for these conditions will be developed in Chapter 7.

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[8] *Ibid.*

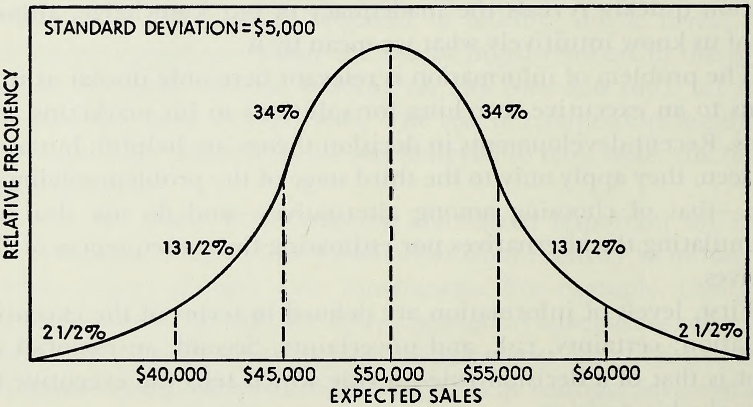
[9] "Strategy of the Seller—or What Businessmen Won't Tell," *Fortune,* December, 1952, pp. 124 ff.

[10] See John A. Howard, *Marketing: Executive and Buyer Behavior* (New York: Columbia University Press, 1963), p. 120.

Under conditions of risk, the executive does not know the consequences of each alternative but he thinks he knows the probabilities associated with these consequences. An illustration will help convey the principle. Let us simplify by assuming that we are interested only in sales; cost could be incorporated so as to yield the profit consequences, but it would only complicate the problem. A probability distribution is a statement of the proportion of the times that a certain outcome can be expected to occur. If one of the things under consideration is sales, the probability distribution would consist of the proportion of the times that we could expect each possible sales outcome to occur. The concept is often expressed in terms of the chances of an outcome happening. To say that $1 million of sales will occur 20 per cent of the time is the same as saying that there are 20 chances out of a hundred that $1 million of sales will occur. The idea of a probability distribution can easily be expressed in the diagrammatic form of Figure 6. This figure approximates a normal distribution, and the areas under different parts of the curve (percentage figures) indicate the probability of that value occurring. Thus if $50,000 is the expected sales, there are 68 chances—34 plus 34—out of 100 that sales will fall between $45,000 and $55,000; and 95 chances out of 100—13½ plus 34 plus 34 plus 13½—that sales will fall between $40,000 and $60,000. The probabilities here are stated as 0.68 and 0.95, respectively.

FIGURE 6

Probability of Expected Sales Results



These probabilities are subjective—existing only in the mind of the executive. Recent developments in statistical decision theory can be quite helpful in utilizing these subjective judgments. Devices are provided that can aid the executive in converting his experience into a subjective probability distribution for the particular decision, and also in deciding whether to delay the decision in order to collect further information or to make his decision on the basis of the information he now has. The executive, and the student as well, can probably learn to develop more dependable subjective probability distributions from experience with the concepts. Finally, anyone with experience probably has some idea about the nature of the probability distribution that he is concerned with so that the tools appropriate for decisions involving risk, as contrasted with uncertainty, probably include a high proporion of the executive's total decisions.

The final level of information is uncertainty. Here the executive believes he doesn't even know the probability distribution of the consequences of each course of action. Decision theory has also given us rules for decision under this level of information: the maximin criterion, the minimax risk criterion, the pessimism-optimism index, and the principle of insufficient reason. As with the previous case (risk), the rules of uncertainty constitute too complex a body of knowledge to include here. The reader is urged to investigate sources that deal with decisions under risk and uncertainty.[11]

The decision rules referred to at each of the three levels of information are called "strategies." A strategy is the rationale (the logic) that underlies a marketing decision, although it is sometimes used to mean what is here defined as a "plan."

A *number* of marketing *decisions* taken together in an interrelated and consistent way and applicable to a given period of time form a mosaic called a marketing plan. More specifically, the *plan* is a description for some specific period of all the dimensions of the marketing courses of action: product, channels, price, advertising, and selling.

A total marketing plan, because of its complexity, must be constructed piecemeal; new products are decided upon, distribution channels are selected, prices are set, advertising plans are made, and the dimensions of the sales force are fixed. But a marketing plan implies that *each* of these elements of action has been established so as to be *consistent* with—rather than in conflict with—the other elements. It must also be consistent with the over-all corporate plan. The failure to integrate the various elements of the marketing plan is one of the greatest weaknesses of marketing in practice.

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[11] Harry V. Roberts, "Bayesian Statistics in Marketing," *Journal of Marketing*, XXVII (1963), 1–4; Paul E. Green, "Bayesian Decision Theory in Pricing Strategy," *Ibid.*, 5–14; David W. Miller and Martin K. Starr, *Executive Decisions and Operations Research* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1960), chaps. iv and v; Robert Schlaifer, *Statistics for Business Decisions* (New York: McGraw-Hill Book Co., Inc., 1961); and R. Duncan Luce and Howard Raiffa, *Games and Decisions* (New York: John Wiley & Sons, Inc., 1957), chap. xiii.

A short-term plan is usually for a year ahead, and it is broken into four quarterly plans; curent practice is to develop long-term plans for three to five years ahead. *The major task of the chief marketing executive is the creation and control of the total marketing plans.*

SUMMARY

A number of concepts have been set forth which describe, first, how the interests of a company should be defined for purposes of marketing decisions, and, second, the process (planning) by which management attempts through its power of decision to achieve this goal.

In Part II that follows—The Marketing Environment—six simplifying assumptions will be made at the outset to facilitate systematic presentation of the fantastically complex topic of marketing management. The complications that are assumed away will be introduced later, except the assumption that the future is known with certainty will be continued throughout the book in the sense that formal tools for dealing with risk and uncertainty will not be included. Obviously, however, it will be necessary at times to refer to some of the complications that arise because the future is, in fact, not known with certainty. With a few exceptions, in Chapters 3 to 7 it will be assumed that the manufacturer sells directly to the user instead of through such an indirect channel as the manufacturer-wholesaler-retailer-consumer pattern of distribution. It will also be assumed in Chapters 3 to 7 that all manufacturing, distribution, and consumption occurs at one point in space. In Chapter 8, however, the complications of indirect distribution channels and of the spatial dimension of the market will be presented systematically. In Chapters 3 to 8 it will be assumed that the law and other social forces do not limit the executive in his pursuit of optimum profits. In Chapter 9 the nature of the complications interposed by the law and their consequences will be discussed. Finally, it will by and large be assumed that the executive always attempts to maximize profits and that making his decisions in the context of an organization does not make a difference in those decisions. In Chapter 15 the complications of company organization and their implications for his decisions (planning) will be introduced. One particular complication of organization is that different objectives must be used at different levels in the company, and in this connection, the problem of goals (including optimum profits) will be dealt with.

PART II

The Marketing Environment

Chapter

3

DEMAND ANALYSIS

Volume of sales is a central element in the decision of a marketing executive. Consequently, an important question is: "What are the determinants of a company's sales?" The task of demand analysis is to seek out and measure these forces. One of these forces, the behavior of competitors, often makes a great difference; the influence of competitors will be implicit in this chapter and systematically treated in Chapter 6. An even more critical determinant, however, is the buyer. Every executive, from his experience, has hunches, beliefs, or a theory of how the buyer responds to the forces that play upon him. The purpose of this chapter is to present a buyer behavior model—a theory—which can strengthen the hunches and beliefs of the experienced executive and offer a partial substitute for experience to the inexperienced executive and student.

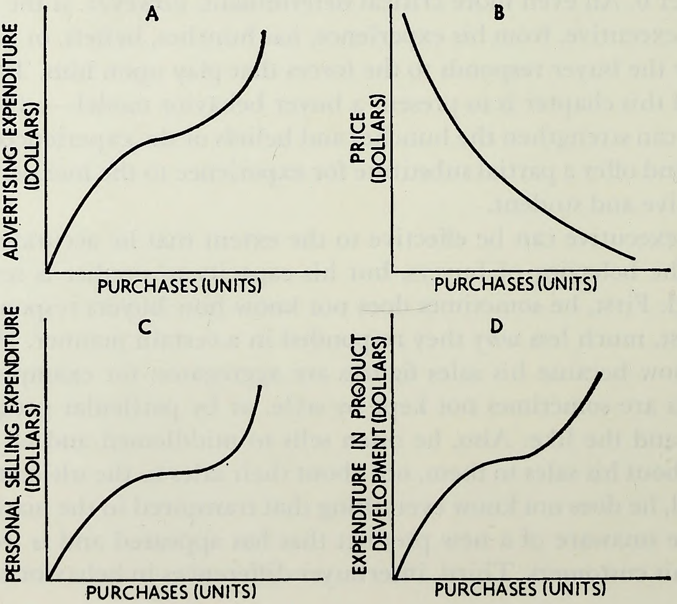
An executive can be effective to the extent that he accurately predicts the behavior of buyers, but his capacity to predict is seriously limited. First, he sometimes does not know how buyers responded in the past, much less *why* they responded in a certain manner. He does not know because his sales figures are aggregates; for example, sales records are sometimes not kept by style, or by particular geographic areas, and the like. Also, he often sells to middlemen and he knows only about his sales to them, not about their sales to the ultimate user. Second, he does not know everything that transpired in the market; he may be unaware of a new product that has appeared and is weaning away his customers. Third, interbuyer differences in behavior confuse the picture: some strongly prefer his brand, but others have a much weaker preference for it. In fact, this problem of differences among buyers has given rise to the marketing practice of *segmenting markets* in order to achieve greater homogeneity of buyers; separate maketing plans are then designed for each of the different market segments. Fourth, even if the executive knew why buyer behavior was what it was yesterday, the *why* of today's behavior may be quite different; new forces—e.g., new products—play upon the market.

Response Curve

In the attempt to predict buyer behavior the executive finds the concept of a *response curve* a useful tool. ("Behavior function" is the more technical term for describing what is here labeled "response curve.") A response curve is simply a graphic description of the relation between one factor—a stimulus—and the buyer's purchasing response. There are two general kinds of response curves: the controllable and noncontrollable. The controllable reponse curves have to do with factors which the executive has control over, e.g., quality of the product, marketing channels, price, advertising, and the sales force. These individual response curves are illustrated in Figure 7. The

FIGURE 7

Response Curves of Controllable Factors



noncontrollable response curves relate to variables over which the executive does not have control, e.g., the buyer's income, competitors' variables, and the like. The executive concentrates his attention on the controllable factors.

In this and the succeeding chapter some of the psychological and sociological mechanisms that underlie the behavior described in response curves will be identified, described, and explained. A working knowledge of these mechanisms can be helpful to an executive in a number of ways which can be summarized as follows:

1. It helps him make sense of the welter of facts that he observes every day from talking with other executives and salesmen and from reading salesmen's reports, trade papers, newspapers, etc.
2. It helps him design the kind of market research studies which will reveal to him the information that he needs for his decisions.
3. When the market research studies are completed, a working knowledge of the mechanisms will interpret the findings so as to be most useful to him.

In this and later chapters buyer behavior will be explained in terms of the executive's requirements. In this chapter, a model of buyer behavior brings together the psychological and social mechanisms that underlie response curves. Later, in Chapter 4, these mechanisms will be related to the concepts of a response curve and a demand curve so as to meet the day-to-day requirements of the executive, including his use of the important tool of market research. In later chapters the appropriate psychological and sociological mechanisms will be related to *specific* response curves involving product quality, marketing channels, price, advertising, and salesmen.

INTRODUCTION TO MODEL OF BUYER BEHAVIOR

Evidence indicates that at least for some products under some conditions, purchasing behavior is merely a climax of a sequence of events—a process—with each event having its own effect; the process of decision rather than the resulting behavior is the central focus here.[1]

Executive action controls a number of these events in the buyer's decision process, and for those it does not control, the executive finds it necessary to recognize and understand their effect in order to predict behavior more correctly.

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[1] Most of the concepts and propositions used in developing the model are taken from general psychology, social psychology, and sociology. For references to the basic sources, see John A. Howard, *Marketing: Executive and Buyer Behavior* (New York: Columbia University Press, 1963), chaps. iv and v.

The purpose of describing the purchasing process found among *consumer, distributive, industrial,* and *institutional buyers* is twofold: first, to explain how (under what conditions) buyers decide to buy one brand or utilize one supplier instead of another; and second, to explain the source and nature of the great differences in behavior that are observed empirically. The term "alternative" will be frequently used, e.g., "the alternative confronting the buyer"; for the consumer "alternative" can be interpreted as "brand," and for the distributive, industrial, or institutional buyer, it can be interpreted as "supplier."

Meaning of Buyer Behavior

In speaking of buyer behavior, which is the end product of the buying decision process, "buyer" suggests that somehow this kind of human behavior is different from some other kinds that might be studied, e.g., political behavior, working behavior, etc. Although these behaviors are perhaps quite similar at a fundamental level, they are considerably different at a more practical level. In what way does the behavior differ?

First, buying behavior involves a sacrifice: money or the promise to pay is given in return for a purchase. All behavior requires energy and foregoing other behavior at the same time, but in general sacrifice is greater in buying behavior. Second, purchases are usually transacted in monetary terms which facilitates more precise comparisons. These two characteristics sharpen the choice process and cause habit to be more vulnerable; as a consequence the buyer is inclined to adapt to the new conditions rather than to rely upon an anachronistic habit. For instance, if a new and superior brand appears and he knows about it, he is likely to try it rather than continue purchasing his old, inferior brand.

This tendency to discriminate among alternatives and evaluate the consequences of the purchase in a foresightful manner is displayed in the complex types of buying behavior that develop in situations that are interdependent over time and among products. First, in relations with sellers, the buyer's behavior has significant time dimensions; he may bargain exceedingly hard today in order to "soften" the seller in future transactions. In periods of exceedingly short supply, the relationship works the other way, of course. Second, interdependence exists among products: The choice in purchasing one product is influenced by the choice to be made about other products. Economists have long used the concepts of "substitute" and "complementary" products.

Product A is a substitute product for B if people want less of A when they buy more of B; A is complementary to B if people want more of A when they increase their purchases of B. An analogous type of interdependence is the common phenomenon in industrial buying of *reciprocity:* a buyer will give preference to a seller who buys from his company. In effect, these interdependencies lead to "bundles of decisions."

Substantial evidence suggests that buying involves an exceedingly wide range of behavior. At one extreme is the simple, habitual brand purchasing. The buyer learns a mode of behavior, e.g., to buy Brand A; and henceforth, whenever there is a need for this product, he automatically chooses A even though dozens of brands may be available. At the other extreme is the most complex behavior, the creative. A buyer trying to fill a new need may exhibit a considerable degree of creative thinking; for example, a manufacturer often learns about new uses for his products from asking buyers how they use them.

Finally, the term "buying decision" has been used repeatedly; but when is a decision a decision? A behavioral definition is used here: a *decision* occurs when the item is purchased or a significant financial commitment to purchase is made.

Buying as a Problem in Learning

The economist has found it useful to assume that the buyer has ceased learning. In marketing, however, learning is accepted as one of the central features of buying behavior because marketing decisions require a very detailed level of knowledge.

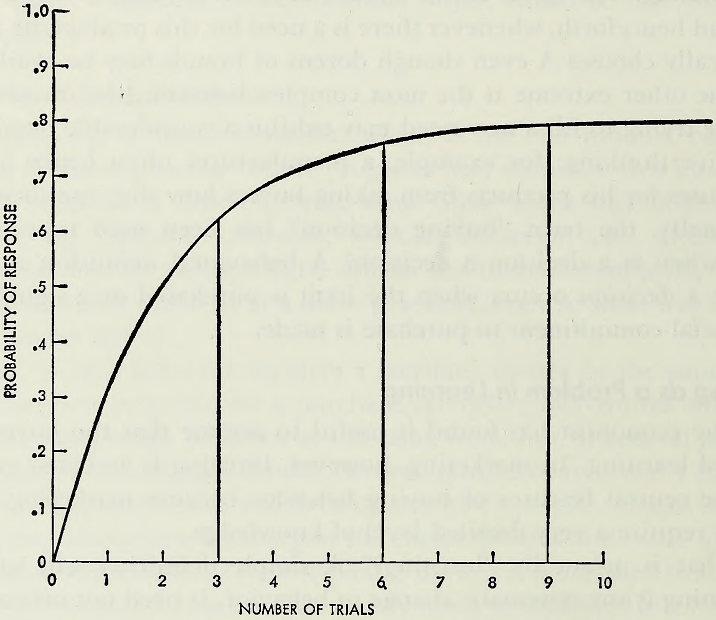
What is meant by "learning?" A simple definition will suffice: Learning is any systematic change in behavior. It need not necessarily be adaptive behavior, but in most buying situations, the dynamic environment during any significant length of time requires the buyer to adapt to new conditions. These environmental changes are induced by such things as new products, changing incomes, etc. In a real sense buying behavior is learned. In other words, wherever possible the buyer *relies heavily upon his experience* (learning) in choosing brands, but because of his changing environment, many of his purchases are made under conditions with which he has had no experience.

Learning Curve. The classic representation of the learning process, the learning curve, is a useful device. It is shown graphically with the number of experiences or, technically, *trials,* on the horizontal axis, and the probability of response on the vertical axis, as indicated in Figure 8. The equation of this curve is $B = M(1 - e^{-kt})$, where B

is behavior (probability of purchasing a particular brand), M is maximum brand loyalty, stated probabilistically, t is the number of trials under given stable conditions, k is a constant expressing the learning rate, and e is the base of natural logarithms. If M is 0.8 and k is 0.5 as in Figure 8, after three trials the probability of repeating the purchase of a particular brand is 0.62. This conclusion assumes "other things constant"; what these other things are will be discussed later. To simplify, it is assumed in Figure 8 that "not buying" is not an alternative; the remaining probabilities apply to other brands, for example, after three trials of Brand A, the buyer has a probability of 0.38 of purchasing the other brands known to him.

FIGURE 8

THE LEARNING CURVE FOR BRAND A



Learning is measured by the increase in the *probability of making a particular response,* e. g., buying a particular brand or purchasing from a particular supplier. The learning curve is negatively accelerated: the amount that a person learns from each trial is less than he learned from the previous trial. The smooth curve shown in Figure 8 is an idealized version of reality. Uncontrolled deviations from the curve always exist from trial to trial when learning experiments are conducted under controlled laboratory conditions; under field conditions—where a company experiments, for example, by changing copy in some markets and not in others—still greater random variation would be expected.

To provide insight into the buyer's decision process, the learning curve is arbitrarily divided into three phases or levels of experience as shown in Figure 8: trials 1 to 3, trials 4 to 6, and trials 7 to 9. Salient characteristics of behavior are exhibited in each phase, and the assumption that the characteristics are associated with each segment is basic to the model. Obviously, change in behavior is continuous throughout the three segments; that is, the boundaries are not sharply drawn empirically. These three phases make it possible to examine meaningful types of behavior in detail and to show the relations among them.

There are five characteristics of behavior that vary among each of the three phases. The first characteristic is the *probability of "repeat" —i.e., repeated—response*. Another is *latency of response*—the amount of time that elapses between the triggering of the decision process and the actual decision. A third is the *amount of ideation* or thinking. The fourth is the nature, including the number, of *stimuli* that influence the buyer's behavior. The final characteristic has to do with particular stimuli, namely the *number of alternatives* considered.[2]

Each phase of the learning process can be described in terms of these behavior characteristics. The first phase—trials 1 to 3 in Figure 8 —is labeled Extensive Problem Solving (EPS). The probability that the buyer will repeat the purchase of an alternative is low; for example, even at the upper limit of the phase, the probability is only 0.62, as shown in Figure 8. Relative to Phase 2, a great amount of time is consumed in making the decision. Considerable ideation, or thinking, is exhibited. A great variety of relevant stimuli come into play, e.g., the physical product, all types of advertising, other people, and the like. Finally, a wide variety of brands is considered.

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[2] Learning in its simplest terms is improved proficiency from experience. This meaning has been made more precise by the measures of learning that have been used: probability of response, latency, and amplitude, but particularly probability of response. Here, in order to develop a model that is more useful for the complex situations that seem to characterize much of purchasing behavior, the writer is going further and postulating that each of the five characteristics are associated with the phases of learning shown in Figure 8. The amount of empirical support varies greatly among the five. Probability of response is well established; latency of response has considerable empirical support though not as much as has probability of response. The remaining three characteristics are yet to be established in any firm way. Some of the few consumer behavior studies suggest these three characteristics, and to an extent they are suggested by latency; for example, since more time is required for the decision in the early stages of the learning process and if information is required, then presumably more ideation or "information processing" occurs. Also, as the latency decreases with increased learning, then presumably the smaller will be the number of stimuli that can be attended to by the buyer, and the same argument applies with respect to the number of alternatives.

In Phase 2, which is labeled Limited Problem Solving (LPS), the probability is greater that the buyer will repeat the purchase of an alternative, e.g., a lower limit of 0.62 and an upper limit of 0.76, as shown in Figure 8. The latency of the decision, the amount of ideation, the number of different stimuli, and the number of alternatives considered are all less than in Phase 1.

Finally, in Phase 3—Automatic Response Behavior (ARB)—at the upper limit, where the buyer has ceased to learn, the decision is instantaneous. There is no ideation. The stimuli are only those that serve to trigger the automatic response mechanism. Often only one alternative is "considered," and the lack of ideation rules out the thought process implied in "consider"; it is an unconscious process. The reader is cautioned to remember that this upper limit can occur at *any level of probability;* in some products it may be no greater than 0.5, with the remaining 0.5 being distributed by some mechanistic strategy among one or more other alternatives. Brand loyalty data suggest that great differences do exist among products with respect to the level of the upper limit.

Thus, each of the successive phases is less complex than the previous one; by "less complex" we mean that fewer variables significantly influence the buyer's behavior. Unless a change in *external conditions* interrupts the process, from his experience in buying a particular brand the buyer usually passes through each successive phase with respect to that brand.

Exogenous and Endogenous Variables

Analytically, the purpose of this model is to explain why some of the variables change in value; other variables will be taken as given (not explained) and assumed to be constant. These unexplained variables are the "external conditions" referred to in the previous paragraph. Which of the variables to explain is an arbitrary decision, but although arbitrary, it is one of the most important decisions in developing a model. To "explain" means that a description of the manner in which the variable changes and *why* will be set forth. The explained variables are called *endogenous,* and the unexplained, *exogenous.* The nature of the latter, the external conditions which for purposes of analysis are here assumed constant, will be enumerated next and then described in more detail in a later section. A common practice in psychology is to view the exogenous variables as being outside the buyer, but this distinction will not be used here.

Exogenous Variables. The exogenous variables as shown at the top and bottom of Figure 9 are: Importance of Purchase, Ease of Post-Decision Evaluation, Amount of Time Pressure, Financial Status, Culture, Social Class, and State of Alternatives. (If the purpose was to deal only with consumer buyers, the life cycle of the family should be included as an exogenous variable, but it is omitted here because an analogue of it does not seem to exist in industrial buying.) The nature of these variables and their consequences will be developed in Chapter 4 where they can be discussed more meaningfully after the central mechanisms involving the endogenous variables have been set forth. State of the Alternatives—a description of the number and nature of the available brands or suppliers—because of its central role, however, will be summarized below and elaborated further in Chapter 4.

Changes in the values of these exogenous variables can interrupt the buyer as he passes through each of the three consecutive phases of the learning process. A significant change in the State of the Alternatives—e.g., a new product appears on the market—presents the buyer with an essentially new learning situation; the new product represents a new set of stimuli to which he must *learn* to respond by either buying it or not buying it.

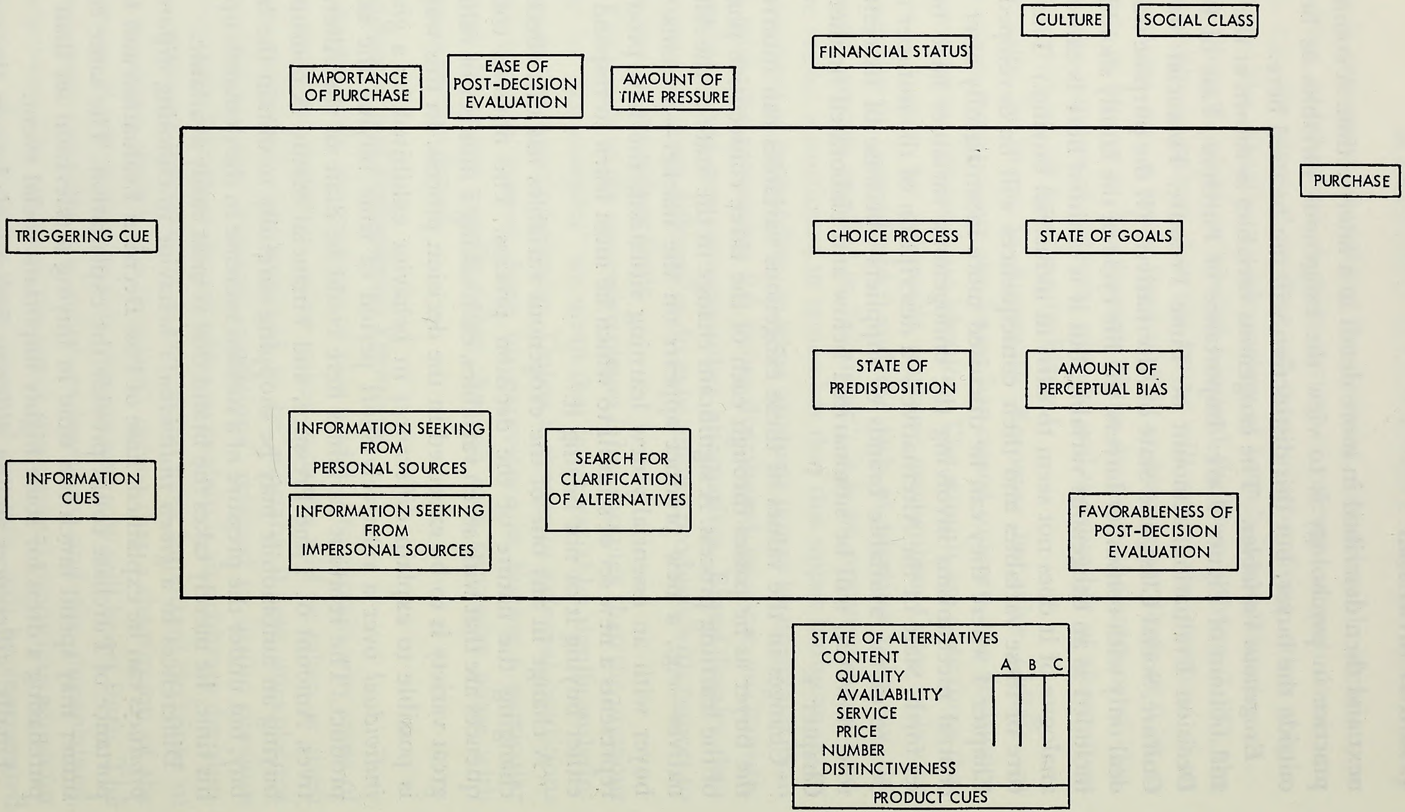
A change in any one of the exogenous variables has this effect of changing the nature of the decision process. The obvious consequences are that with seven variables, each taking a number of values, great variety is to be expected in the decision process. In this way it is possible to explain *differences* in behavior exhibited by a *given individual* over a relatively short period of time buying the same product. The relevant variables here could be State of the Alternatives, Amount of Time Pressure, and Financial Status. A consumer buying an automobile may be shopping carefully to obtain the best buy, but under the pressure of a sudden increase in the demands upon his time, he merely takes the brand that is most easily available.

Differences in a *given individual's* behavior in choosing *different products* can be explained. Ease of Post-Decision Evaluation and Importance of Purchase could provide the explanation. The same consumer may spend much less time in buying a television set than in purchasing a dress for some highly important social event.

Finally, *differences* among *different individuals* buying the same

FIGURE 9

Factors in Buying Behavior as a Learning Process


CULTURE
SOCIAL CLASS
FINANCIAL STATUS
IMPORTANCE OF PURCHASE
EASE OF POST-DECISION EVALUATION
AMOUNT OF TIME PRESSURE
PURCHASE
TRIGGERING CUE
CHOICE PROCESS
STATE OF GOALS
STATE OF PREDISPOSITION
AMOUNT OF PERCEPTUAL BIAS
INFORMATION SEEKING FROM PERSONAL SOURCES
SEARCH FOR CLARIFICATION OF ALTERNATIVES
INFORMATION CUES
INFORMATION SEEKING FROM IMPERSONAL SOURCES
FAVORABLENESS OF POST-DECISION EVALUATION
STATE OF ALTERNATIVES
CONTENT
QUALITY
AVAILABILITY
SERVICE
PRICE
NUMBER
DISTINCTIVENESS
A
B
C
PRODUCT CUES

product can be explained. Social Class and Culture are probably most relevant for this task. A consumer from the upper middle class in buying a television set may be much more inclined to read *Consumer Reports* than is her lower-class counterpart, and so she will use different purchasing criteria.

Endogenous Variables. The endogenous variables, shown in Figure 9, constitute a system with the Triggering Cue as an input and Purchase as an output. Different sets of these endogenous variables will be emphasized in each of the three phases of the learning process: Extensive Problem Solving, Limited Problem Solving, and Automatic Response Behavior. Certain psychological and sociological mechanisms enable us to show the nature of the relations for each phase.

BASIC MODEL

A stimulus-response model is used here to provide the concepts and set of relations that will serve as the basic framework upon which a more elaborate structure will be built. The reader is well advised to secure a clear understanding of the definitions of the concepts and how the concepts relate to each other, shown in the behavioral equation below, to yield purchasing behavior. Since the reader is probably meeting many new concepts for the first time, he may question the relevance of some of them to buying behavior in the market. He must understand, however, that only by beginning with a simple model such as this can we hope to understand the exceedingly complex behavior that the marketing executive must attempt to comprehend in formulating his marketing plans.[3]

Four essential concepts of the stimulus-response model are drive, cue, response, and reinforcement. *Drives* have to do with motivation, although motivation is used here in a more precise sense than it usually is in marketing literature where it often refers to everything that influences behavior.[4] Drives are strong internal stimuli which impel action in the buyer. They are of two kinds: innate and learned. Innate drives are such physiological needs as hunger, thirst, pain, cold, and sex; they are approximately what is often referred to as instinct, by which is meant something that is genetically determined. Learned drives—e.g., striving for status—are acquired when paired with the satisfaction of innate drives, and represent elaborations of the innate drives and serve as a façade behind which the functions of the innate drives are hidden. For marketing purposes the learned drives are probably dominant in economically advanced societies. Later, more complex elements of drive will be introduced, e.g., how drive relates to group or organization goals which is important for the housewife buying for the family and the industrial buyer purchasing for the company.

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[3] For a fuller statement of the model and pertinent references to the basic sources, see Howard, *op. cit.*, pp. 91–115. The greatest portion of research in psychology in the past two decades has been carried out in the framework of this model.

[4] "Drive" and "need" overlap in their meanings; "need" may refer to any motivational striving or tension of whatever nature without regard to any multiplicative relation with habit as posited in the behavioral equation discussed in this chapter. For the purposes here, "drive" and "need" can be used interchangeably. Stimulus-response-reinforcement theorists prefer "drive," and cognitive theorists prefer "need." Economists have usually referred to "wants" which are taken as given; it is the task of marketing to explain "wants."

Cues determine *when* the buyer will respond, while drives impel the response. Cues are what we usually call *stimuli,* but technically they are referred to as weak stimuli to distinguish them from the strong stimuli underlying drives. In talking about the complex topic of buyer behavior, it is helpful to look into the cue concept. There are *triggering* and *nontriggering* cues. The triggering cue "kicks off"—activates—the decision process for any given purchase. The nontriggering cues are of two kinds: *product* and *informational.* These cues influence the process but do not activate it and may operate at any time even though the person is not contemplating a purchase at the moment. Product cues are those received from the physical object directly; for example, they could be the color of the package, the weight, the price, etc. Informational cues refer to external stimuli; they exclude the stimuli of the physical brand itself but include information about the brand and they are therefore *symbolic* of it. These stimuli could be from advertising, conversations with other people including salesmen, etc. Also, specific product and information cues may function as triggering cues as well.

Response is roughly what the buyer does; and obviously he can do a number of things. He can exhibit the overt behavior of buying or not buying; he can use a verbal response in telling us his preferences for and against certain alternatives. He can exhibit a preparatory response, e.g., a *perceptual or ideational response,* such as looking at an advertisement or the brand itself; or he may exhibit the final, *consummatory response.* This overt, final, or consummatory purchasing response is a crucial variable for our purposes and may be clarified by mentioning ways in which it can be measured. Probability of response, mentioned earlier in connection with the learning curve, is the most common measure. Other measures are latency of response and amplitude of response. Amplitude is the intensity of response, for example, as indicated by the quantity purchased.

A less precise way of describing the buying response, but one that may be quite useful under some circumstances, is to speak of a *decision rule.* It is not the response per se, but a certain logical process that underlies the response. Psychologically, the buyer learns not only a consummatory response but also a set of related ideational responses; for example, he learns to discriminate (ideational responses) among the cues that constitute different brands and then he learns to choose among them. All these responses are a part of the purchasing decision process. A rationale that puts coherence into this set of ideational and consummatory responses is the decision rule. Bauer[5] describes some examples that he has observed consumers using:

1. Buy a plain and sensible design because surface esthetics cover up bad workmanship.
2. Buy in a shabby store because the costs of operation are low and therefore the prices are not too high.
3. Buy private or advertised brands in small shops—as long as the shops are legitimated by carrying some advertised brands—because they reduce the range of alternatives and thus weed out the least preferable ones.

A *reinforcement* is any event that strengthens the tendency for a buyer to make a particular response. Technically, what is reinforced or rewarded is the tendency to make a response in the future to the cue that immediately preceded the response. Thus, it is the *cue-response association that is learned.* The cue is that cue which the buyer uses to identify the alternative; if the alternative is satisfactory, the buyer is reinforced and, because of this reinforcement, the probability is higher that he will buy the product next time—he has learned.

Behavioral Equation

The central concepts associated with the learning process that have just been described can now be brought together in the behavioral equation which in its simplest form is: $B = P \times D \times K \times V$. B is equivalent to response—the act of purchasing a brand or patronizing a supplier.[6] *P* is predisposition—the "inward" response tendency—which is the strength of the habit; it must be sharply distinguished from the "outward" response tendency (*B*) which is the *product* of the "inward" response tendency (*P*) *and D, K,* and *V* multiplied together.[7] *D* is the present drive level. *K* is the "incentive potential" which is an increasing function of the magnitude of the brand being purchased. Finally, V is the intensity of the cue.

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[5] R. A. Bauer, "Consumer Behavior as Risk Taking," in American Marketing Association, *Proceedings of the Forty-third National Conference, Minneapolis, Minnesota (1960)*, pp. 389–98.

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[6] The behavioral equation as stated here is modified in three ways. First, *B* (behavior) is used instead of the standard symbol ${}_sE_r$ which stands for "reaction potential," a state of the individual short of overt behavior. See Kenneth W. Spence, *Behavior Theory and Conditioning* (New Haven: Yale University Press, 1956). The simplification facilitates the communication of these complex ideas, and for most purposes it involves no serious loss. Second, *P* (predisposition) is substituted for ${}_sH_r$, meaning "habit strength." Reinforcement theory which underlies the behavioral equation posits that reinforcement (reward) is a necessary and sufficient condition for the cue-response connection to be learned and for a habit to develop, although defining reinforcement in functional terms does reduce the stringency of this requirement. See John Dollard and N. E. Miller, *Personality and Psychotherapy* (New York: McGraw-Hill Book Co., Inc., 1950), p. 42n. The concepts of generalization, learned reinforcement, and gradient of reinforcement (all from reinforcement theory) help to explain the sequences that constitute buying behavior. The position is taken here, however, that reinforcement is a sufficient but not necessary condition for learning, and though heavy dependence will be placed upon reinforcement theory, the writer does not wish to be completely bound by it. The complex behavior that some people appear to exhibit in buying some products suggests that the decision process may involve such a length of time between triggering cue and purchase that reinforcement, if it exists, is exceedingly difficult to identify. Also, in the model of buyer behavior being set forth in this and the subsequent chapter, attention is focused upon those variables in the buying situation over which the marketing executive exerts some control. Here the learning effects may be quite small but still economically justified from the company's point of view. It may be, for example, that most of the marketing effects are through higher-order mental processes—e.g., a "psychological set" such as "learning how to learn"—which are learned and where reinforcement plays a necessary and sufficient role in the learning process, but the higher-order process tends to develop in the individual apart and separate from any marketing influence. "Information processing" is one way of describing this use of previously learned sets. Third, the symbol *V* in the behavioral equation is used to mean the intensity of all cues: triggering, informational, or product. This use goes beyond the experimental evidence of a multiplicative relation between *V* and other elements in the equation in two ways: (*a*) The experimental evidence applies only to the cue that immediately precedes the act of purchase. As will be seen below, what is labeled "triggering cue" in Figure 10 is actually a triggering cue for effort directed to searching personal and impersonal services when *P* is low and searching the physical alternatives when *P* is at a medium level. Only when *P* is high does the triggering cue precipitate the purchase directly. (*b*) The informational and product cues do not necessarily correspond precisely to the triggering cue in the sense of being events that trigger conditioned responses. It remains the task of fundamental research to tell us if this extension of the concept of *V* is justified.

[7] The "outward" tendency to respond (*B*) to a particular brand may fall to zero if the buyer is not rewarded. After an interval of rest, the appearance of the stimuli will frequently result in renewed response without intervening reinforced experience. Where did the response come from since the "outward" response tendency had previously been extinguished to zero? The answer is that some predisposition to respond (some inner habit) was preserved in the nervous system during the period that response strength was at zero. Thus, predisposition (*P*) and behavior (*B*) are different variables which will be expected to have different values. This distinction is what is referred to in the frequently noted difference between performance (reaction potential) and learning (predisposition). Adding to the possible confusion is that in the psychological literature, what has been labeled "B" here and referred to as "outward response tendency" is often called simply "response tendency." The distinction between "outer" and "inner" response tendency is useful, but later it will be found that in some sequences of behavior one form of behavior goes on inside the human body, namely, ideation or thinking.

The relation among the variables is believed to be multiplicative rather than additive; if any one independent variable has a zero value, B will be zero and there will be no response. For instance, no matter how much P there may be, if the individual at the moment is totally unmotivated ($D = 0$), he will not respond.

Each time there is a response—a purchase—in which the satisfaction (K) received from the response is sufficient to yield a reward, P will increase in value *as a result* of the rewarded response. Additional reinforced purchases, however, increase P at a negatively accelerated rate which was illustrated in the shape of the learning curve shown in Figure 8. This statement holds true as long as B is above the threshhold level, which will be discussed below.

This learning model provides the basic tools by which the purchasing decision process, viewed as phases of the learning process, is explained in terms of the psychological and social mechanisms that underlie the response curves of the various elements of the marketing plan. The next step is to apply these tools to each of the phases; we will begin with Phase 1 of the learning process, Extensive Problem Solving.

EXTENSIVE PROBLEM SOLVING

Extensive Problem Solving (EPS) represents the most complex behavior in the learning process; the endogenous variables that determine the nature of this behavior and their most essential relations are shown in Figure 10 which is a summary of the rest of the chapter. It describes a *single* buyer, and brings together four central concepts: learning curve, the basic model (the behavioral equation), endogenous variables, and exogenous variables. The reader can use this more elaborate model of buyer behavior more effectively if he will obtain a firm grasp of the following description of Figure 10.

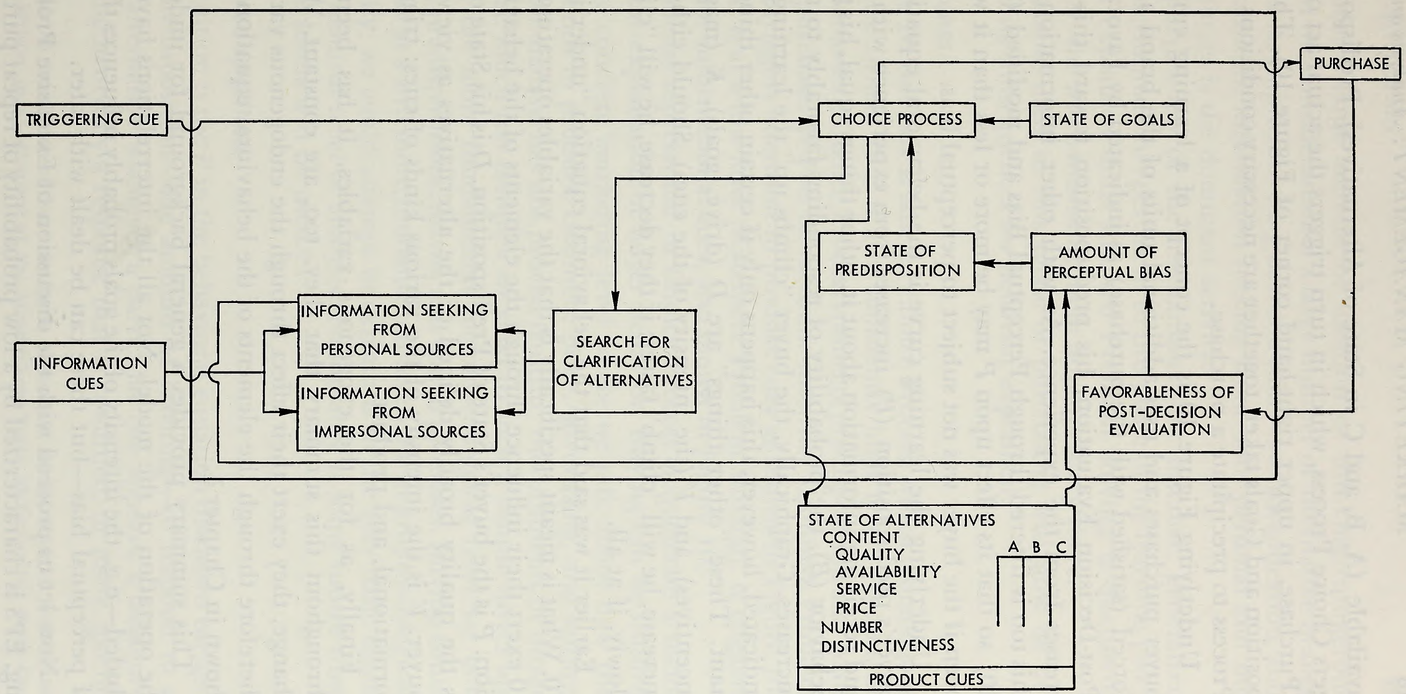
As shown in Figure 10, the buyer has essentially four sources of information from the "outside." First, as a result of some event, the triggering cue in the upper left portion of the figure tells the buyer that some product will meet the *need or drive that he now feels*. His needs are described in Figure 10 by State of Goals in the upper right-hand corner. Diagramatically, Triggering Cue triggers Choice Process, and what actually occurs next depends upon the Level of Predisposition (P) as we shall see later. First, however, let us examine another source of information because it strongly influences the level of P.

Experience (learning) is the buyer's second source of information, and experience with the product typically arises from past purchases as shown by the line from Purchase in the upper right-hand portion of Figure 10 to Favorableness of Post-Decision Evaluation. To the extent that he has had experience in the past with some brands and the experience was satisfying (he was reinforced by the purchase), the buyer will choose the brand on the basis of this experience. The details of this process will be presented later; we are now concerned only with providing a general outline. In Phase 3 he depends almost entirely on experience.

In Phase 1, however, by definition the buyer has had little or no experience with any brand of the product. It might seem that he could use his third source of information: examination of brands of the physical product itself (*Product Cues*). These product cues come from the State of the Alternatives shown in the lower part of Figure 10, but because of such limited experience with the product, he is not familiar with all the brands that are actually *available*. Consequently, in Phase 1 the buyer must depend mainly upon his fourth source of information which is *Information Cues* shown in the lower left part of Figure 10. These are from personal sources (friends, neighbors, etc.) and such varied impersonal sources as advertising, news, consumer guides, etc. From them he learns of the brands that are available, but he learns other relevant things, too, which will be discussed later.

Obtaining this information requires some effort on the part of the buyer which is implied in Search for Clarification of Alternatives in the lower left corner of Figure 10, but whether search effort is expended in fact depends upon the value of P at the time. When the buyer's Choice Process is notified by the triggering cue that a product will suit his needs, if *Predisposition is low* (Phase 1), Choice Process triggers him to *search* for the best brand of that product. The information about the brands that he collects in his search process (information cues) passes from the two information seeking sources through the Perceptual Bias box shown in the middle and to the right of Figure 10 as the line indicates. Perceptual bias is the tendency of the buyer to *misperceive* information. The information flows through Perceptual Bias to Predisposition, and in the process it is filtered and modified. This information causes P to rise with respect to some brands and lower with respect to others, according to the evaluations the buyer makes of the brands. When he has acquired enough information to make his choice among all the brands that now he knows are

FIGURE 10
Extensive Problem Solving


TRIGGERING CUE
INFORMATION CUES
INFORMATION SEEKING FROM PERSONAL SOURCES
INFORMATION SEEKING FROM IMPERSONAL SOURCES
SEARCH FOR CLARIFICATION OF ALTERNATIVES
CHOICE PROCESS
STATE OF GOALS
PURCHASE
STATE OF PREDISPOSITION
AMOUNT OF PERCEPTUAL BIAS
FAVORABLENESS OF POST-DECISION EVALUATION
STATE OF ALTERNATIVES
CONTENT
QUALITY
AVAILABILITY
SERVICE
PRICE
NUMBER
DISTINCTIVENESS
A B C
PRODUCT CUES

available (A, B, and C in State of Alternatives), Predisposition triggers Choice Process, which in turn triggers the actual act of purchase (Purchase, in upper right-hand corner of Figure 10). Thus, Predisposition and Goals taken together are necessary conditions for Choice Process to precipitate a purchase.

Underlying Figure 10 is the concept of a learning curve. As the buyer purchases and uses additional units of the brand and is reinforced (satisfied with the purchase) as indicated by Favorableness of Post-Decision Evaluation, his predisposition toward this brand increases from the experience. As with other information, however, this too is filtered through Perceptual Bias and modified (See Figure 10) so that its effect upon *P* may be more or less than it would have been if the buyer was not subject to perceptual bias.

Underlying the learning curve is the behavioral equation. As the buyer's predisposition (*P*) increases from experience with the brand and receiving information about it, other things equal, his purchasing behavior (*B*), the probability of responding favorably to this brand, increases. Graphically, the buyer "climbs up" the learning curve. As indicated, however, this happens only if certain other things are constant. These "other things" are *D* (drive, goals), *K* (magnitude of incentives), and *V* (the intensity of the cues). Should either of these increase, he will "climb" faster; if they decrease, he will "climb" more slowly, if at all.

Earlier it was said that the behavioral equation "underlies" Figure 10. What is meant specifically is that the variables operating in Figure 10 exert their influence through the elements of the behavioral equation. *P* is the buyer's State of Predisposition. *D* is his State of Goals. *K* is the quality broadly defined of the alternatives as viewed by the buyer. *V* is the intensity of the various kinds of cues: triggering, informational, and product.

Finally, as for the exogenous variables, it has been assumed throughout this summary that they, too, are constant. When they change, they exert their effect through the endogenous variables and therefore through the elements of the behavioral equation as will be shown in Chapter 4.

This summary provides a general background for understanding the operation of the model. Not all the interrelations have been included—e.g., the intensity of the goals probably influences the amount of perceptual bias—but these can be dealt with later.

Now let us proceed with the discussion of Extensive Problem Solving. EPS is characterized by a low probability of repeat purchase, long decision time, a large amount of ideation or thinking, numerous stimuli, and the consideration of a large number of alternative brands or suppliers. As implied by long decision time, extensive ideation, and numerous stimuli, information seeking from both personal and impersonal sources is the dominant activity.

To simplify, a few of the mechanisms—for instance, generalization and discrimination—pertinent to this phase of the learning process are not explained until Limited Problem Solving is discussed; conceptually, the mechanisms fit more appropriately there.

Each variable used in this phase of purchasing will now be described and its consequences for behavior explained.

Choice Process

In Figure 10, one box is labeled Choice Process, which is analogous to an electric switch. If P is at a sufficiently high level (Automatic Response Behavior), Choice Process connects predisposition and goals to yield a purchase. If P is of medium intensity (Limited Problem Solving), it triggers attention to product cues as shown in Figure 10. Finally, if P is at a low level (Extensive Problem Solving), it triggers the search for informational cues, also shown in Figure 10.

The elements represented in Choice Process characterize a sociopsychological explanation of buyer behavior. Buying can be studied at the more concrete *marketing* level where we talk about how the buyer responds to product, channels, price, advertising, and selling. This level of analysis has not proved fruitful; the problems of buyer behavior are much too complex to yield to such a simple direct approach. At the more fundamental *sociopsychological level* we talk about cues, predispositions, drives, and search processes. Buying could be examined at a still more fundamental level, the *neurophysiological level*. Finally, we could attempt to explain it in the very basic terms of the *biochemical level* of analysis. Presumably at some future time the last two levels will be used.[8]

State of Predisposition

Predisposition is the P in the behavioral equation discussed earlier. It is the predisposition—the amount of learning—to respond to a particular alternative whenever a particular cue appears, a tendency that is strengthened by a response that is rewarded, or more specifically, a purchase that is satisfying. It has only one dimension, intensity.

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[8] For a readable description of those two levels of analysis, see Seymour M. Farber and Roger H. L. Wilson (eds.), *Control of the Mind* (New York: McGraw-Hill Book Co., Inc., 1961).

Predictions about Behavior. A great amount of experimental evidence supports the idea of a relation between predisposition and behavior. Kuehn's study of consumer panel data on frozen orange juice provides some evidence from marketing.[9] For example, if out of the consumer's four most recent purchases, his first purchase was Snow Crop (*S*) and the other three times he purchased some other brand (*O*) —a purchase pattern of *SOOO*—the probability would be 0.13 that he would purchase Snow Crop the next time. On the other hand, if the pattern was *SSSS*, that is, if the consumer had purchased Snow Crop on each of the four last purchases, the probability would be 0.80. If we assume that other forces were random, it can be inferred from the increased probability that learning occurred.

Once a predisposition of a certain intensity is created, how permanent is it? Once the predisposition (*P*) has been built up for a brand, it is believed to dissipate at a negligible rate. But the response (*B*) may disappear much more quickly. *Extinction* of the response occurs when a response is practiced, a purchase is made, but it is not rewarding to the buyer; *forgetting* occurs when a brand is not purchased. If the buyer, however, again purchases the brand and finds it rewarding, *B* will quickly return to its former level.

Relation to Concept of Attitude. Management often wants to know whether its advertising and other marketing efforts are effective. For a number of reasons the effect upon sales directly is difficult and expensive to find out. An economical and widely used alternative measure of effectiveness is the change in the buyer's *attitude* toward the brand. An attitude is the buyer's feeling for or against the brand; with modern sampling techniques, a sample of buyers can be interviewed after an advertising campaign to determine economically how much of an effect the campaign had on the buyers' attitudes toward the brand.

This important concept of attitude is a part of the buyer behavior model, but *latent* and *expressed* attitudes must be distinguished. Predisposition is defined here to include *latent* attitude.[10] The *expressed* attitude is usually verbal behavior, and like any other response, it is determined by *D, K,* and *V* as well as by *P*. The distinction is important because even though the latent attitude (*P*) does not change, the buyer expresses a different attitude merely because the attitude is expressed under changed conditions of *D*, *K*, or *V*. This possibility is illustrated by the phenomenon of interviewer bias—different interviewers will elicit different expressed attitudes from the same respondent, which is a common problem in using the survey method of market research.

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[9] Howard, *op. cit.*, p. 117.

[10] Latent attitude is viewed as equivalent to *P*. The advantage of this formulation is that by distinguishing latent and expressed attitude the complexity of measuring attitude becomes highlighted. The empirical justification for equating *P* and latent attitude is that attitudes can be developed by simple conditioning as shown by a number of laboratory studies.

Attitudes as Predictors of Behavior. How valid are expressed attitudes as predictors of overt purchasing behavior? Three studies suggest that at least under some circumstances, attitudes toward alternatives change more than does overt purchasing behavior. In a study by the National Broadcasting Company, for example, attitudes toward Scotties tissue improved from 16 per cent to 42 per cent under the influence of television, but the criterion behavior—consumption—increased only from 15 per cent to 35 per cent. It is quite plausible that behavior changes lag attitude changes. Finally, even in the absence of a lag and assuming the latent attitude is correctly inferred at the time of purchase, there are constraints on behavior, e.g., lack of money, that do not exist with respect to attitudes; these constraints may be the explanation.[11]

Attitude toward Future Purchases. An important specific type of buyer attitude is that the buyer often plans future purchases. The psychologist often refers to the satisfaction that is planned for as "deferred gratification." The marketing executive uses the term "impulse items," by which he means "unplanned purchases." Finally, the economist labels information about the buyer's plans to purchase as "intentions data."

The relevance of planning is that during the planning period, the buyer is particularly receptive to information about the various alternatives, and he sees information that otherwise he would not notice. Changes in the level of the buyer's income, for example, encourage him to plan his purchases to conform to the availability of his income to pay for them. In the attempt to control the business cycle, much good research has been done in economics to develop sophisticated models explaining the observed discrepancies between plans to purchase and the actual purchases. However, the usefulness of these "intentions data" for forecasting consumer buying is very much an open question.[12]

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[11] This relates to a point that has long plagued the economist in his attempt to measure the price-quantity relation so important to microeconomic theory. He has relied almost solely on observational data which, of course, are behavioral data and yield only a point, not a function. Prior to Working's contribution (Elmer J. Working, "What Do 'Statistical Demand' Curves Show?" *Quarterly Journal of Economics,* XLI (1927), 212–35) the economist was not quite sure whether he was deriving a demand curve, a supply curve, or a mixture of the two.

Expectations about changing income is one reason for planning, but there are others. Katona and Mueller state, for example, "there were those (consumers) who had a hard time making up their minds or who planned a long time because they were anxious to make a good buy," which presumably has nothing to do with income expectations.[13] Whether the planning forced by changes in income has the same effect on choice behavior as other types of deliberation is not clear. As an indication of planning, housewives in a supermarket were questioned whether they had a shopping list. The results are summarized as follows:[14]

No written list	54.9%
Partially written list	20.8%
Completely written list	24.3%

Even though a housewife does not use a shopping list, we cannot be sure that she does *not* plan; she may be relying on her memory. Indeed, very careful planning could result in memorizing a list. The study also indicates that food products differ much in the amount of planning. Finally, the study reports that housewives are spending 50 per cent more time—a total of 27 minutes per visit on the average—in supermarkets but are buying only 8 per cent more items than in 1954. What this change implies about the amount of planning remains to be seen.

Attitude toward Number of Alternatives. Another important specific attitude is the number of alternatives that are considered in buying. The issue of the number of alternatives that buyers tend to consider in making their purchases is more appropriately discussed in Limited Problem Solving where attention is focused on the alternatives.

State of Goals

"State of the Goals" has to do with motivation. "Drive" (*D*) was one of the elements of the behavioral equation, and State of Goals is merely an extension or elaboration of drives that is necessary to deal with the complex behavior encountered in some purchasing.

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[12] See, for example, National Bureau of Economic Research, *The Quality and Economic Significance of Anticipations Data* (Princeton: Princeton University Press, 1960).

[13] George Katona and Eva Mueller, "A Study of Purchase Decisions" in Lincoln H. Clark (ed.), *Consumer Behavior* (New York: New York University Press, 1955), p. 44.

[14] *The Shopper and the Supermarket,* 6th DuPont Consumer Buying Habits Study (Wilmington, Del.: E. I. duPont de Nemours & Co., Inc., 1959), p. 7.

The first complication is to incorporate *learned* drives. By "goal" is meant the satisfaction of a drive or need. Thus eating—or more accurately, the receipt of food in the stomach—is the goal of the hunger drive; the learned drive for status has the goal of reducing the status drive through receiving the esteem of others. Much purchasing in the economically advanced countries is probably motivated at least in part by needs that are not innate. The innate drives, it will be recalled, are hunger, thirst, pain, cold, sex, etc. Good experimental evidence shows that drives can be learned; for example, apes can be taught to work for poker chips which in themselves are useless to the apes. "Status" is often mentioned as an example of a learned drive.

"Group goals" represent a second extension of the basic concept of need. A housewife buying for a family and a purchasing agent buying for a company both modify their personal needs to conform to the needs of their group, the family and the company, respectively. Also, it can be recalled that goals are the process by which the need is satisfied; the goal is the means to the individual's ends—to reduce the drive—and is not an end in itself.

Goals have four dimensions: content, number, intensity, and distinctiveness.

Content. By "goal content" is meant the sum and substance of the goal as separate from its intensity. Two general problems in speaking of goal content are (1) the principles by which the goal content is developed—goal formation—which is the province of learning theory, e.g., the behavioral equation; and (2) the actual content which is the domain of personality theory where considerable effort is devoted to identifying particular needs of individuals. It has already been said that secondary needs and goals are learned.

Let us illustrate with the industrial buyer; the principles also apply in an analogous way to a housewife buying for the family. In the simplest terms, if the industrial buyer first shows a cost reduction from his activity, the cues associated with cost reduction will be neutral and have no effect on his behavior until he is rewarded. When he is rewarded, e.g., by praise from his boss, the cues associated with cost reduction will then have a positive effect.[15] The need to reduce cost becomes a learned drive, and when the actual cost reduction is achieved, this becomes a learned reinforcement. As this example suggests, there can be many orders of learned drives, e.g., secondary, tertiary, etc., leading to exceedingly complex behavior.

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[15] Though at first glance it may seem farfetched, many psychologists believe that the reason praise from the buyer's boss should be a potent reinforcer can be traced as far back as childhood and even infantile experience where *innate* drives were being reinforced. Stated more sharply, much adult behavior may in this way have a psychological basis.

Personality theory deals with the actual goal content, but it is characterized by a large number of theories, none very satisfactory as yet.[16] Marketing researchers have since 1950 devoted a lot of attention to various and diverse theories of personality, though they have used them mainly to interpret already-collected data rather than using the theory to decide which data should be collected in the first place. Personality tests have been used in marketing to measure an individual's needs and systematic attempts have been made to relate a buyer's personality characteristics to his tendency to purchase specific brands. By and large the results have not been very successful.[17]

Intensity. Presumably one of the effects of marketing effort is to change the intensity of a buyer's need so that from the standpoint of marketing, a key issue is whether the drive will be sufficiently *intense* to strengthen the external response tendency (B) enough to exceed the *threshold level* and precipitate a purchase? What is meant by threshold? Threshold is the amount of outward response strength, the product of D, K, and V, that must exist to bring about overt behavior, B. A cue that elicits behavior at one time might not elicit the behavior at another time because the drive is not sufficiently intense. Consequently, marketing effort may be having an effect even though the purchasing behavior is not currently elicited; with experience a predisposition (P) develops, but it may not be strong enough at any particular time to offset low values of D, K, and V, and thus to elicit action. Also the *effort* of going to the store, for example, may have to be offset. Also, the drive may not be adequate. If not, the appropriate behavior will be elicited at some later time when the drive is sufficiently high so that "outward" response tendency exceeds the threshold. Still further, an increase in V could cause the response strength to exceed the threshold. "B" is an "outward" response tendency which can be either *overt* or *implicit*. If the response strength is not sufficient to exceed the threshold, the behavior is only implicit, not overt.

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[16] In fact, it is one of the least well-developed areas of psychology, although it has long occupied the attention of psychologists. Some people working with buyer behavior problems find Murray useful, while others prefer Maslow. Some of the most interesting empirical work has been done by McClelland on the achievement motive. See H. A. Murray *et al., Explorations in Personality* (New York: Oxford University Press, 1938); A. H. Maslow, *Motivation and Personality* (New York: Harper & Bros., Inc., 1954); and D. C. McClelland, *The Achievement Motive* (New York: Appleton-Century-Crofts Co., Inc., 1953).

[17] F. B. Evans, "Psychological and Objective Factors in the Prediction of Brand Choice: Ford versus Chevrolet," *Journal of Business*, XXXII (1959), 340–69.

It is possible for the drive to be too intense. An intense need can cause the buyer to take to a similar alternative, since with high drive, the buyer discriminates less acutely. (The effect of drive upon discrimination will be discussed in connection with "generalization" in the next chapter.) In studying consumer durables, Katona and Mueller [18] found that low-income families were less inclined to plan, and to deliberate because their needs were more urgent, e.g., a refrigerator is purchased only when the current one breaks down. In general, they found that planning and urgency of purchase are negatively related.

Distinctiveness. Distinctiveness refers to how easy it is for the buyer to discriminate among ways of achieving need satisfaction. The buyer has difficulty discriminating among innate drives, and discrimination is presumably even more difficult among learned drives and organization goals. One purpose of psychotherapy, for example, is to teach a person to discriminate among his needs.

Goals can be ambiguous—lack distinctiveness—in group decision because different members have different goals. In industrial purchasing, for example, the user wants a particular brand that has given him good service irrespective of cost, but the specialist in purchasing—the buyer—wishes to balance performance against cost. When goals are distinctive, the buyer will carry out his task more effectively because penalties and rewards can be attached to them; alternatively, when they are not clear, the buyer has difficulty in learning the response that leads to satisfaction. Although the examples have been in terms of the large complex organization, such as the company, they apply to the family as well.

Number. The larger the number of goals the more complex is the drive summation or goal distinctiveness problem. A large number of goals leads to delay in decision and rationalization if the responses required to attain these goals are in some measure incompatible.

Amount of Search for Clarification of Alternatives

The buyer is motivated *to seek information.* Katona and Mueller[19] find considerable evidence of this; they conclude that it is not simply "mulling over" previously acquired information but consists of actively seeking new information.

There are many degrees of effort by which information is sought as implied by Amount of Information Seeking. One extreme would be mere receptivity to stimuli; the other extreme is where extensive overt effort is devoted to collecting information about the alternatives.

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[18] Katona and Mueller, *op. cit.*

[19] *Ibid.*

What kinds of information does the individual seek in connection with his buying role? He seeks information about the available alternatives as well as how they contribute to satisfying his needs. Also, he seeks goal information. A buyer's goals are significantly influenced by the social structure; learning the appropriate goals is an essential process to maintaining social status. Finally, when an individual makes a decision where the outcome is uncertain, he is likely to turn to others for moral support; this process of paying attention to the opinions of others is often termed "consensual validation" or "legitimation."

What is information? Information involves one of the most complex problems, namely, that of *meaning*.[20] A way of grappling with meaning is to say that communication—the process of information transmission—can be studied at any one of the following levels: syntactical meaning (relations among signs), e.g., statistical information theory; semantical meaning (relations between signs and the things they are signs for—significates); and pragmatical meaning (relations between signs and sign-using organisms such as people), e.g., behavior in response to stimuli (signs).[21]

In marketing, the interest lies first in semantical meaning and then in the relevance of signs for behavior, which concerns the pragmatical meaning, although from limited research we have found that the syntactical meaning (statistical information theory) is also relevant for human behavior: People *want* information. Further, we are interested mainly in *linguistic* communication, that is, in meaning conveyed by language rather than nonlinguistic communication, e.g., information conveyed by gestures, etc. Thus, in our case the signs are words, and the things that the signs represent, signify, or symbolize (significates) are brands and suppliers.

Language represents (provides signs for) things (significates) because it serves as a stimulus to produce in buyers some part of the actual behavior that the buyer would exhibit if stimulated by the physical presence of the alternative. This language is transmitted by advertising, salesmen, and other means. However, for language to serve as a sign-carrier for an alternative, the language need not evoke all the behavior elicited by the actual alternative; for example, a *number* of signs taken together as a pattern of stimuli might elicit all the purchasing behavior.

Not only does this way of dealing with language provide a firmer logical grasp of the problem of information, but it also relates to a technique of measuring meaning—the *semantic differential*—that has come to be used for marketing problems, particularly in advertising. A buyer is asked to place a brand or supplier along each of a number of scales involving adjectives; for example, the extreme of a scale could be *good-bad, fair-unfair, valuable-worthless,* or *tasty-distasteful.* The brand, for example, would be placed within this range by the buyer according to how he feels about it. The meaning—or rather one of the various facets of meaning—that this item holds for the buyer is derived in this way. It has been used, for example, in measuring the effects of different ads upon the buyer's attitude toward a brand.

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[20] The meaning of "meaning" is highly controversial, and some feel that any meaning of "meaning" is superfluous for information and communication.

[21] Howard, *op. cit.,* p. 120.

Predictions about Behavior. For many products, shopping would seem to be a key means of clarifying alternatives. Yet both the Katona-Mueller and Alderson studies[22] suggest limited shopping. The observed tendency not to shop, however, does not necessarily suggest that the housewife-buyer is irrational since other sources of information exist:

1. *Experience.* The buyer may be well informed from past experience.
2. *Advertising.* Some, but by no means all, advertising presents considerable technical information; however, it is biased.
3. *Discussion.* Discussion offers a pleasant way of getting information, and the buyer gets goals and legitimation as well. It is not as systematically misleading as advertising.
4. *Shopping guides and reports.* Not many people use shopping guides and reports, but such sources as *Consumer Reports* do exert significant influence among the better educated, especially for larger-item products. Shopping guides and reports, however, provide no information about the retailer, and thus no information on retail prices, financing terms, and servicing.

In addition, shopping is costly in the sense of requiring time and effort; mothers with small children find it especially difficult to shop. Moreover, "shopping around" does not reveal all information, such as which appliance will work better mechanically, etc.

Women tend to buy in one store, but with an occasional check in other stores. This occasional check would be viewed as one way in which they periodically validate their decisions. Shoppers prefer stores that are geographically proximate and similar in character.

A prediction that follows from the above statements is: Amount of Clarification of Alternatives and Decision Time are positively related. Amount of Clarification of Alternatives is the sum of Amount of Information Seeking from Personal Sources and Amount of Information Seeking from Impersonal Sources. Face-to-face relations—interaction—are "personal sources" of information; all other means of obtaining information are "impersonal sources."

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[22] Katona and Mueller, *op. cit.;* Wroe Alderson, "Basic Research Report on Consumer *Behavior*" (Philadelphia: Alderson & Sessions, April, 1957).

The mechanisms by which information seeking is allocated between Personal and Impersonal Sources are not yet well understood. For complex topics (e.g., a new product), personal sources are probably more efficient than impersonal sources because personal sources permit feedback, and that feedback improves communication has been shown in laboratory studies. Availability of the information might be a determinant. Presumably the function which the information is to serve (goal content, legitimation, or technical information) would also make a difference in the route used; impersonal sources would be relatively better for technical information since it is neutral from the standpoint of values (drives). Finally, the source used may differ among the phases of the decision process: perhaps personal sources are more effective in initiating the use of a new product, and impersonal sources (advertising) more effective in continuing its use.

From a study done prior to television, Katz and Lazarsfeld[23] offer one of the few available comparisons of the effectiveness of various media in causing the shifting of a brand or product among consumers; the following are arranged in decreasing order of effectiveness:

1. Personal contacts.
2. Radio advertising.
3. Newspaper advertising.
4. Magazine advertising.
5. Salespersons.

Although last on the list, company expenditures in the form of salespersons' salaries may still be profitable.

A more precise prediction is made here: it is hypothesized that Amount of Information Seeking is inversely related to predisposition as measured by the number of reinforced trials. Put another way, the further along the learning curve a buyer is, the less inclined he is to seek information.

Amount of Information Seeking from Personal Sources

Katona and Mueller, Alderson, and Katz and Lazarsfeld have all documented the significant influence of talking with other people as a source of information in consumer buying. Some published studies, and particularly one unpublished study, come to similar conclusions about industrial buyers, and here the dominant personal source is especially relevant because it is the salesman.

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[23] E. Katz and P. F. Lazarsfeld, *Personal Influence* (Glencoe, Ill.: Free Press of Glencoe, Inc., 1955).

Technical information is sought from both personal and impersonal sources, but the two other types of information—goal and moral support—almost uniquely characterize interaction. Both the content of the buyer's goals and their intensity are affected.

A distinction is made between the analysis appropriate for the consumer and that appropriate for the industrial buyer. The company can be viewed as a type of social structure analogous to the social relations influencing the consumer, but the influence processes that operate in the social structure are much less specific and more diffuse than they are in the company. Recently a body of analysis has been developed—*organization theory*—which can contribute immensely to the understanding of the industrial buyer. The term "complex organization" will be used to describe a large purposeful group of people like the company. The theory of social structure will be used for the consumer and the theory of complex organizations will be used for the industrial buyer, but much of the theory of social structure is applicable to complex organizations.

Social Structure. The central idea of the theory of social structure is the concept of *group*: those people with whom the individual in carrying out some activity regularly has sufficient face-to-face relations to lead him to believe that they have expectations about his behavior and that he considers these expectations to be morally binding on him. Similarly, he has expectations about their behavior. The basic unit of a group is a *dyad,* the relations between two members. It is assumed here that the buyer is a member of only one group, whereas, in fact, a person is usually a member of a number of groups.

"Groupness" is a matter of degree, a continuum. The intensity of this group effect for an individual is measured by the frequency with which he interacts with others in the group and the extent to which he defines himself as a member and to which they define him as a member.

Groups are technically referred to as *reference groups:* the individual "refers" to them in deciding how he shall behave. However, there are reference groups of which he is not a member; for example, there may be a group whose membership he aspires to but has not yet achieved. This, too, influences his behavior.

From these groups the individual receives much of his knowledge about purchasing: goals, technical information, and moral support.

From the standpoint of the buyer's goal information, each group has *norms of behavior*—a set of behavior rules to which each member must conform if he is to remain in the group. When a buyer accepts the group goals as his, he is said to *identify* with the group. Identification is a learned response, and those who do not identify are presumably those for whom identification responses were not rewarded in the past by the particular stimulus group under consideration.

Not only does the group influence the buyer's goal content but also his goal intensity. The concept of *relative deprivation* implies that when deciding how important or urgent it is to achieve some goal, the buyer refers to his group to determine whether he is deprived—in a state of deprivation—relative to the other members of the group. If so, his goal will become more intense.

In each group, the buyer has a *status,* a position in the group relative to all other members. Status is an objective fact—not the buyer's subjective view of his position. A buyer is often said to have a status drive, but this is true only in some global sense. This means that he wants status in certain groups; he wants respect and affection from *some* people, not just anybody. The buyer's various statuses in each of the groups make up his *status set.*

In each group the buyer has a *role* which is the pattern of behavior that the group attributes to, and expects of, the particular position he is occupying. The housewife, for example, buys food and clothing, but perhaps not automobiles; also, she has a number of nonpurchasing roles such as disciplining the children. *Role set* describes the configuration of the total roles of an individual in a particular status.

Finally, a dynamic concept is *sequence of status sets*—the succession of statuses through which an individual passes with sufficient frequency that the sequence is socially patterned. For example, a person may first be a medical student, then an intern, a resident, and, finally, an independent practitioner. Thus, a formal definition of social structure is a *collection of role sets, status sets, and status sequences.* These basic units—roles—are locked together to form a coherent pattern that maintains the boundaries of a society and, at least in principle, enables us to identify that society.

To illustrate the general context of group effects in a study of tea drinking, it was found that advertising called attention to tea. This led to group discussion of the virtues of tea drinking, which in turn caused members of the group to be even more aware of advertising. The concept of the company image is relevant here. Current information about product via advertising, for example, is filtered through individual attitudes of the group members; some of these are attitudes about the company image and thus could influence the nature of the current input to the buyer via his group's filtering effect.

It may be very helpful to look at a buyer's decision in terms of his ability to bring about change within a group; this is obvious for industrial buyers, but it is also true for the family, e.g., a housewife persuading members of the family to use a particular new product. The different ways of bringing about change could be discussed as information to arm the salesman or the advertising copywriter, e.g., participative group decision overcomes resistance to change. Moreover, it is suggested that unless others in the buyer's group also see the ads, the buyer is less likely to get support in changing group behavior. This is an argument for wider advertising coverage.

Buying Behavior in Complex Organization. An industrial buyer receives information from within his company mainly through interaction (see Personal Sources in Figure 10) with other people. Impersonal sources, such as policy memos, memos on product performance from users, etc., do exist, of course, but interaction is by far the most important. To simplify, it will be assumed that *all* information is received through interaction, but the analysis applies to Impersonal Sources (see Figure 10) as well.[24]

The overview provided by this paragraph will aid the reader who has met the following ideas for the first time. With experience the industrial buyer learns: he develops a routine for carrying out his task. His work—his routine—must, if he is to be effective, meet the company's needs. Since his task is mainly to *make decisions* about which suppliers to patronize, the routine in this case is a buying decision process. From the point of view of the organization, the decision process that the buyer develops from experience serves (1) to *control* his behavior so that he will satisfy the organization's purchasing requirements rather than his own personal needs and (2) to co-ordinate his buying with all related company activities. The latter function—co-ordination—is both essential and difficult. Finally, to understand how a buyer makes his decisions, it is essential to know how the company organizational structure influences his decision process. The more important of these influences are: (1) the way in which he perceives the great amount of information he must have to do his job, (2) the nature of the goals he uses in making his purchasing decisions, and (3) the nature of the company's communication network.

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[24] Much of the analysis underlying this section is taken from the March-Simon theory of organization. See James G. March and Herbert A. Simon, *Organizations* (New York: John Wiley & Sons, Inc., 1958), especially chap. vi; for a statement of the theory as applied to marketing decisions, see Howard, *op. cit.*, chap. ii. March and Simon, however, use the term "program" to describe a routinized decision process. More generally, they look at decisions as being on a continuum of degree of routinization or "programmedness." They are not concerned, however, with explaining how the decision process becomes routinized or programmed but instead with explaining how the organizational factors bear upon whatever decision process exists. The model of buyer behavior is primarily concerned with explaining that which the March-Simon theory largely takes as given. The relationship between degrees of routinization and the three phases of the learning process is obvious. Thus, there is no conflict between the model of buyer behavior and the March-Simon model of organization; they supplement each other: one is a theory of organizational behavior and the other a theory of individual behavior.

Now let us proceed to examine in more detail the nature of the purchasing decision process, its function, and the way in which the organization influences it. Purchasing decision processes appear to vary widely in terms of the amount of discretion by which they are characterized. In some instances, specifications are so closely drawn by the user that only one or two suppliers can meet them. In fact, the using department may request a *specific* supplier. If the delivery date is also fixed, the industrial buyer is free only to negotiate a price. Conversely, the buyer may have wide discretion. In an extreme case of discretion the buyer investigates the capability of the supplier's research facilities to meet the buyer's needs five and ten years hence, and then he uses this information as a criterion of purchase.

For the industrial buyer, there are varying degrees of routinization. Routinization of the buyer's purchasing program is defined by the amount of discretion the buyer uses. Company policy can limit his discretion, of course, as has just been indicated, but in addition, as the buyer gains experience in buying a particular product under stable conditions, his behavior will become more routine. From the learning process, he limits his own discretion. To refer to experience here, then, is merely a loose way of referring to his position on the learning curve; the "stable conditions" are the exogenous variables described earlier. For the sake of concreteness and clarity, only quite routinized decision processes will be discussed, but the theory will apply to situations that are much less routinized.

For decision processes to perform their control function effectively, their activity (purchasing) must be linked to variables that are observable and measurable so that the individual's performance can be evaluated. People working in purchasing have devoted considerable effort to attempting to develop measures of performance for themselves, but evaluating the performance of a buyer as contrasted with the man on a machine is particularly difficult. Consequently, in a sense the buyer does not know how to behave, or in other words, however he behaves, his superiors cannot determine whether he is doing a good job, and, therefore, they cannot appropriately reward or punish him.

The need to co-ordinate purchasing with the rest of the company is fairly obvious; for example, materials must be available to meet production schedules, but many problems of co-ordination are quite subtle. The need to co-ordinate arises because of the *division of work* principle. Efficiency is achieved in a company by assigning tasks to each individual in such a way that he can specialize and become more efficient through the opportunity for him to use decision processes repetitively. The purchasing department is an example of a high degree of specialization. Increasing specialization, however, leads to greater costs of co-ordination because more co-ordinative effort is required. Achieving a satisfactory compromise between specialization and co-ordination is the central problem in developing an effective organizational structure.

Co-ordination in a company can be accomplished either by *plan* or by *feedback*. In co-ordinating by plan, for example, a time pattern of purchases—a schedule—can be formulated at the beginning of the company's planning period, and the buyer can make these purchases as required by the schedule. If the plan completely specifies all aspects of the requirements, as well as just the time element as above, the buyer will find it unnecessary to communicate with the user at any time during the period.

Co-ordination by feedback requires communication; when the user needs an item he writes a requisition to the buyer, and upon making the purchase the buyer notifies the user. However, this is merely the minimum amount of communication; often the user and the buyer negotiate about various aspects of the item even before the order is placed by the buyer. The buyer repeatedly finds, for example, that if he can persuade the user to change the specifications a little, it will be possible to buy the item at a lower price.

Although some co-ordination in purchasing can be planned, it would seem that the bulk of co-ordination must be by feedback, which imposes a heavy burden upon the company's communication system. A supplier's products or product line may change, his competitors' offering may change, and new suppliers may appear; these events often require information from the buyer to the user, and feedback from the user to the buyer.

Having examined the control and co-ordinative function of a buyer's decision process, we can proceed to discuss the three main influences which make a difference in how effectively the company can *control* the behavior of the buyer. The nature of these influences to an extent reveal why marketing effort can influence industrial buyers. These three factors are termed the *organizational influences* upon the purchasing decision process.

Perception: Essentially, this discussion has to do with the Perceptual Bias variable which will be more systematically dealt with later; here the purpose is to present a systematic description of the nature of the organizational environment surrounding the buyer, of which perceptual effects are only a part of the problem.

The complexity of the real world and the buyer's finite human capacity cause him to have a subjective, simplified view of the conditions surrounding the decision. These conditions can be labeled elements of *his definition of the situation:*

1. Assumptions about future and current events.
2. Knowledge of the alternatives available.
3. Estimates of the consequences of these alternatives for his goals.
4. Goals.

The buyer's perception of what these conditions are in any concrete instance may diverge from what is objectively true. All these elements in the buyer's definition of the situation are subject to the same tendency to be, in fact, simplified, screened, and biased models of the objective situation, and they are developed according to the same principles.

With respect to the first element, marketing effort by the seller, e.g., salesmanship, can serve to call the buyer's attention to some information and thus encourage him to ignore other information. The industrial buyer guesses about future prices, future delivery dates (in some industries the lead time changes sharply over the business cycle), and future product quality, which often changes over the cycle.

The second element—knowledge of the availability of alternatives—is also important to the buyer, since in most industries new products are continually becoming available. Third, the buyer's task of measuring the consequences of each alternative against his goals is indeed a complex problem, and in doing so, the buyer may not see all the objectively available information.

Finally, the problem of perceptual limitations is particularly relevant to goals because through the goals the nature of the perceptual process influences the decision process in two ways. First, goals are perceived and alternatives are measured (evaluated) against them; thus goals serve as a standard of choice. Second, goals influence what we perceive; to an extent we see what we want to see. The specific psychological mechanisms by which perception is distorted will be discussed in connection with the variable, Perceptual Bias.

Goals. What are the buyer's goals? The concept of goal in an organization can be more sharply seen in terms of *means-ends analysis.* Logically, we can think of a company organization structure as being constructed by first establishing a set of top-level goals, e.g., those of the president and the board of directors. The president then asks himself what means will accomplish these ends (the goals). Having decided that marketing, finance, production, etc., are the essential means, he then allocates to each of his vice presidents a task to carry out these means. In each case, the president's means to a goal accomplishment becomes the goal (the end) of a vice president. To accomplish his task the vice president of production, for example, must allocate the means to his subordinates; the function of purchasing is assigned to the purchasing agent who, in turn, assigns the task of purchasing a set of particular products to a specific buyer. This argument can thus be carried further down the line, level by level, the means of each level being the end or goal of the next lower level.

Now, the concept of goal or subgoal must be related to the buyer's drive; a subgoal is not a drive. When a learned drive occurs—triggered by the appearance of a requisition, for example—it elicits the responses directed toward achieving the most immediate subgoal of the means-end chain. (The relation between an individual's drive and the goals of the organization was more precisely stated earlier in the subsection entitled "Goal Content.")

One of the first questions about the influence of goals upon the decision process is whether the goals of the buyer are congruent with those of the organization. In a large company the possibility that the goals of one level are not necessarily congruent with those of the next higher level is obvious. The complicated nature of a buyer's goals encourages this lack of congruency, e.g., the purchasing agent often says that the goal of the buyer is to purchase most economically—according to price and quality; however, in fact, the buyer is often rewarded by the company for meeting delivery date requirements, or by minor gifts from salesmen, a practice which some companies do not prohibit. Company goals also change over the business cycle. One executive has said, "There probably isn't a purchasing agent alive who doesn't know how to buy 'better' than he does, but his efforts are constantly frustrated by the top management struggle to relate earnings to changing levels of sales revenue."

Aside from self-interest or motivational reasons, the buyer's goals may not be congruent for cognitive (intellectual) reasons. One such cognitive reason is *goal differentiation;* if the buyer differentiates among the goals, he may focus on one at the expense of the other. The goal that the purchasing agent typically describes to the buyer is "buy as economically as possible." It requires the buyer to pay attention to quality, price, and delivery; but the buyer may, in fact, focus on delivery alone.

Another cognitive reason is the *persistence of goals;* once a buyer has become familiar with using a specific goal, he may continue to use it even though it is no longer appropriate in terms of the organization's requirements. This can happen in industrial purchasing: in prosperous periods a satisfactory delivery date is the buyer's dominant goal, but when a recession impinges, price may become paramount in the eyes of higher management as the need to cut material costs increases, making the delivery date less important because inventories are being depleted deliberately and delivery delays are acceptable. The buyer may not respond by adjusting his actual decision goals to the new organizational goals.

This tendency to use conflicting goals is supported by three influences: (1) the buyer's selective perception, (2) the filtering effect of the organization on information being transmitted through it, and (3) selective exposure. First, the buyer may be more inclined to "see" the information that is received from sources that have a point of view similar to his. The buyer may *filter out* the information or he may rationalize, i.e., reinterpret it in a way that is consistent with his frame of reference.

Second, the *content of the in-group communication* may modify the information. By "in-group" is meant the group that is relevant to the purchasing of a particular product. Surprising though it may seem, the salesman often seems to be more of a member of the buyer's "in group" than is the user of the product.

Third, there is the element of *selective exposure*. The buyer by virtue of his position is exposed to some stimuli, not others. Specifically, he is exposed to salesmen, to trade journal advertising, and to the users in the plant rather than to economy-minded financial controllers, for example.

In addition to the congruency of goals, there is the problem of whether a goal is *operational;* can the buyer unambiguously measure alternative suppliers against the goal? As mentioned repeatedly above, the typical goal is "buy as economically as possible," and its ambiguity is obvious. Optimizing behavior with respect to such a goal is virtually impossible. Correspondingly, it is difficult for the buyer's supervisor to know whether the buyer is pursuing the goals that he should. In terms of the functions that a decision process performs, as mentioned earlier, the control function of the buyer's program does not function precisely—it is linked to variables that are difficult to observe and measure. To be operational and used simultaneously, the common goals of price, quality, and delivery date must be combined into a weighted index. By far the greatest attention is given to delivery date; price and quality are often unsystematically mentioned, if at all, in the buyer's face-to-face relations with his boss.

In group decision (the buyer and the user, for example), if goals are shared, a rational or analytic decision process will be used; if not, a bargaining process on goals will be employed. The goals of the two are usually different; in fact, purchasing tends to be economy oriented while engineering tends to be quality oriented. Moreover, because of the competition for status and the lack of feedback between the two, slight animosity may exist between them, which could intensify the tendency to bargain on goals.

The more that identification with the company is induced by cognitive (thinking) rather than only motivational (emotional) links, the greater the effectiveness of attention-directing stimuli in changing goal emphasis. To illustrate, the buyer can be shown that there is a logical connection between his immediate needs and serving the company's goals, or he can be told with no logical justification that "good, loyal company men" follow the company's goals. This suggests that a buyer's goals can be changed by merely calling attention to the appropriate goals, but the possibilities of this are reduced because the buyer's goals that are established by the purchasing agent are not highly operational, as indicated above.

Communication. Finally, the nature of the communication flows in the company influences the buyer's program. There are a number of occasions for communication:

1. To develop new decision processes and to modify existing ones.
2. To evoke decision processes.
3. To provide data for application to given decision processes.
4. To provide feedback information on the results of activities.
5. Obviously not all of the activity of a buyer is routinized; for example, he does irregular, odd jobs. Communication is necessary in carrying out this unroutinized activity. For the purpose here, however, it is not necessary to discuss unroutinized activity.

As suggested above, the interdependence of activities in a company requires the flow of information. Typically, feedback co-ordination seems to be practiced in purchasing. Both the timing of the purchase and the specifications of the product have to be co-ordinated.

A way of tolerating the interdependence between the buyer and user is to increase the efficiency of communication by developing a technical language or *code.* A code is a set of categories of events. The user and buyer could agree, for example, that the crucial dimension was delivery date, and that all other discrepancies in a supplier's performance would be tolerated. A simple code here could consist of "plus" (on time) and "minus" (not on time). The buyer finds it difficult to secure information from the user and to transmit information to him about new products that suppliers and other sources have offered. The information is often exceedingly complex; therefore, some type of coding is essential. Product specifications constitute such a code.

It is necessary for the buyer to make a compromise between the use of several decision processes and the use of a single decision process which does not quite fit particular situations. The buyer might have a decision process for one department but quite another for buying the same product for another department whose needs are slightly different, or alternatively, he could use the same decision process in buying for both departments.

The concept of *uncertainty absorption* is relevant in understanding buyers. When inferences are drawn from a body of evidence, and the inferences, instead of the evidence itself, are communicated, uncertainty has been absorbed. The person receiving the inferences has no means of checking their validity because he does not have access to the data from which they were derived; thus, the person who made the inferences "absorbed uncertainy" for him. If the user alleges that the product of a particular supplier has performed badly, the buyer is severely limited in his ability to check the accuracy of the statement. The problem becomes still more difficult because the buyer and the user may look at the situation in different ways, and as a result the user may send up inappropriate information.

The *communication network* consists of channels in the organization through which flows the information that co-ordinates the interdependent activities of a company. This information can be seriously biased, and a company serving industrial buyers needs to understand the nature of the relevant portion of the network of the companies to which it is selling.

Much of the information passes through "thru-channel" routing, that is, it follows the channels of command; but some of the information goes across departmental lines. Large company purchasing has a surprisingly small amount of "cross-channel" communication between buyer and user; however, interdependency exists across departments in purchasing, e.g., if the buyer doesn't purchase the appropriate product, the user can be seriously handicapped.

Channels of infomation are designed to minimize the communication burden, but not much can be done to modify the system. Insofar as the points of origin and the points of action are determined in advance, the point of decision is the only element that management can change.

The sheer volume of communication influences the nature of the company's organizational structure; organizational units that specialize in handling information tend to be established, e.g., the accounting department.

Communication channels can develop through usage. The greater *the efficiency of the communication channel, the greater the communication channel usage*. Channels are reinforcing; channels that are effective for some purposes will be used for other purposes. For example, a channel was designed in one company for transmitting price information, but salesmen also found it to be an effective channel for speeding delivery to customers. Also, channels tend to be through people with a common language which facilitates communication.

Once established, a communication network will have a strong influence upon decision making, particularly the unprogrammed—the less routinized—decision. The network determines which stimuli executives will most often encounter. In addition, it determines how often the consequences of decisions are forcefully brought to the attention of executives, which may be more significant than it might appear; executives seldom know the consequences of their decisions since they are too busy worrying about the next decision. Also, too many forces may be operating to permit executives to identify one of these forces, even if they took the time.

A marketing executive should know the nature of the relevant communication network in each of his customer companies so that he can introduce particular information into their network in the most appropriate places. The information he would like to have pass beyond the buyer often has to do with the qualities of the product rather than price and delivery date; on these latter two issues the buyer presumably makes the decision. Unless the potential user knows of the availability of a product, he is not likely to request it, particularly in the case of significantly new products. Advertising is often used to supplement salesmen, because in this way the buyer, in a sense, can be bypassed without being offended; "back-door selling," an anathema to industrial buyers, can be avoided. Trade magazines are a common industrial advertising medium; direct mail might be used.

The marketing executive has no direct control over the other sources from which his consumer companies receive information, e.g., his competitors; he does have an indirect control in the sense that he may "stuff" the communication channels of his buyers.

Predictions about Behavior. Earlier it was said that the more intense the "groupness," the greater the effect upon the individual. Three variables determining the amount of effect upon individual behavior are: (1) the content of interaction, (2) the time devoted to interaction, and (3) the characteristics of the interactors.

As for content, the question is: "What is the strength of interaction in influencing behavior when the content has to do with buying?" Katz and Lazarsfeld[25] tentatively conclude that interaction is more important for some areas of content and less for other areas; for example, it is more important in decisions about new products than for established products. This is consistent with the general hypothesis underlying the model: buyers seek information more intensely in the early stages of the learning process than in the later stages. Presumably, interaction varies among types of products being purchased; for example, with a high-risk item, interaction would be more effective because of the social validation of judgments.

The time element—the amount of interaction—has been extensively studied. For example, Chapple,[26] much of whose work has been done with salesmen, deals with the amount of time consumed in interaction. He goes further and concludes that the person initiating the interaction will have the greater effect.

Finally, the characteristics of the interactors make a difference in the effect of others on the buyer. It has been hypothesized that influential people have certain characteristics: (1) the personification of certain values—who one is, (2) competence—what one knows, and (3) the strategic social location (whom one knows both "inside" and "outside" the group).

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[25] Katz and Lazarsfeld, *op. cit.*

[26] Eliot D. Chapple and Gordon Donald, Jr., "An Evaluation of Department Store Salespeople by the Interaction Chronograph," *Journal of Marketing*, XII (1947), 173–85.

Katona and Mueller[27] found that 50 per cent of these consumers questioned about durable products turned to friends and relatives for information; they were the most important single source. In some products (automobiles) the different members of the family, and by this we mean those who are filling different roles, exert influence on both decisions—whether to buy and which brand. Katz and Lazarsfeld[28] found that most consumer brand shifting influence is extra-family, except for such products as coffee for men and cereals for children. Older women tend to influence younger women even though they are not within the same family. Contrary to popular belief, there is little exchange among social classes.

Classifying salesmen according to these "interactor" characteristics presumably would help in identifying effective salesmen.

The discussion has emphasized the influencer, but we should ask whether the influencee has certain characteristics which make him more subject to being persuaded: Hovland has shown that some personalities are more "persuasable" than others.[29]

Amount of Information Seeking from Impersonal Sources

Impersonal, noninteraction sources of information exist for the buyer in great variety, e.g., consumer guides, mass media, direct mail, and shopping (to the extent that the retail salesman exerts an influence, shopping would be a type of interaction). For the industrial buyer it could include intracompany memos, mass media, advertising, direct mail, brochures left by salesmen, etc.

As yet we do not know enough about where the effects of impersonal sources of information impinge upon the buyer and the mechanisms by which these effects operate to be very specific in describing them. Presumably advertising, for example, can serve as a triggering cue, but in the stage of the learning process that we are concerned with in Extensive Problem Solving, the triggering cue can play only a small part in the elicitation of the purchase because predisposition (P) is at a low level so that a more intense triggering cue (V) is necessary to precipitate behavior than if P were high.

The buyer's predisposition can be influenced since we know that attitudes can be changed by advertising. Perhaps advertising also affects the intensity of his goals through the sociological mechanism of "relative deprivation." The content of his goals may also be affected to some extent.

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[27] Katona and Mueller, *op. cit.*, p. 45.

[28] Katz and Lazarsfeld, *op. cit.*, pp. 213 and 214.

[29] Carl I. Hovland and Irving L. Janis (eds.), *Personality and Persuasibility* (New Haven: Yale University Press, 1959).

Predictions about Behavior. In the early stages (Extensive Problem Solving) of the learning process, advertising probably operates largely through the network of the group by calling attention to the availability of the alternative. How this might operate was illustrated earlier in the study of tea drinking. With time, individual experiences with an alternative are fed into the group and become the means by which group judgments about it are made. Time is required for this process to be accomplished, but advertising, by calling attention to the brand and thus causing it to be a topic of group conversation, can speed up the process by which these group judgments are made and individual behavior is affected. To the extent that intensive advertising exists, decision time will presumably be shorter. Still more elaborately, Katz hypothesizes the two-step flow of communication whereby *the* "influencer" is the group's contact with the outside world and he transmits information to other members.

In the advanced stages of the learning process, advertising works directly on the buyer by justifying his current choice, as will be shown below, as well as by triggering the decision.

Amount of Perceptual Bias

In psychological research it has been found that individuals do not "see" all that is "out there," and that these omissions are biased rather than random. Also, there are instances where people "see" things that are not "out there," i.e., hallucinations. It is believed that these perceptual limitations influence buying behavior.[30]

Amount of Perceptual Bias is shown in Figure 10 as a path through which all cues enter the system. For the sake of simplicity, however, the triggering cue in Figure 10 is not shown as being subject to perceptual bias. In some instances the effect of a cue is to change the value of the variable—the *amount* of bias—but this is too much of a complication to show in Figure 10.

"Perception" is being used here, in a broad sense. Included in "perception" are such phenomena as two men going into a restaurant together, the one thirsty and the other hungry; the thirsty one sees the wine list, and the hungry man sees the menu. That this type of "selective perception" should occur under the influence of dominating interest is generally accepted by psychologists. Perception can be defined in narrower, sensory terms, such as the size or brightness of an object; the wine list would have had to look larger and brighter for perceptual bias to exist. Many psychologists argue that even this more limited type of perception can be biased by motivational determinants, but the position is controversial.

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[30] Much of the research on perception has been in cognitive psychology, but the problem can be translated into stimulus-response theory which treats perceptual bias as a *limited scope of cues to which the buyer responds,* since only responses to these cues have been reinforced.

Three concepts are helpful in specifying this broad use of "perceptual bias": (1) selective attention—the buyer pays attention to some cues and not others, (2) selective exposure—the buyer exposes himself to some cues and not to others, and (3) selective retention—the buyer retains some information and not other information.

One of the mechanisms advanced to explain perceptual bias is the *congruity principle.* Largely under the topic of "cognitive dissonance," research has been done that explains buyer behavior in terms of the congruity of his information, his attitudes, and his behavior.

Inconsistency (incongruity) of information, attitude, and behavior is thought to cause tension, or dissonance, which motivates the buyer to attempt to make them consistent. If new information is received which is inconsistent with his current attitude or behavior (a better brand appears), the buyer is motivated to one of two courses of action: (1) to change his behavior to accord with the new information or (2) to offset the effects of the new information by (*a*) ignoring it or (*b*) seeking other information that controverts it. Further, dissonance arises even in the absence of new information: buyers make decisions to purchase, for example, a brand whose quality they prefer but whose price is "too high." Or, the price may be satisfactory but the brand does not serve their status needs as adequately as the foregone brand. Also, especially if it is an item that is not frequently purchased, the buyer does not know but what the brands *he did not buy* are really better purchases than the one he did buy; he has limited capacity to evaluate the brands that he does not purchase. The problem arises because of the multidimensionality of both goals (needs) and alternatives.

The dissonance can occur either before the buyer purchases (predecision) or after he purchases (postdecision). If it occurs predecision, then the buyer may, for example, seek information through selective attention and selective exposure that will support his decision, such as the reading of ads about the brand. Brown cites Starch advertising readership data to support this hypothesis and states that advertising copywriters recognize the phenomenon and prepare ads to meet the need.[31]

Since an industrial buyer often finds it difficult to get information from the user on past performances of a product, he is forced to make decisions without adequate information. This should lead to post-decision dissonance which causes him to seek information to support his decision, and he has ready access to such information, though biased, from the supplier's advertising and salesman. How much dissonance is created remains to be determined. An offsetting effect may be the tendency for the "role position" that he fills to give the buyer confidence, since whoever fills the position of "buyer" may be regarded as the one authorized by the organization to make such decisions.

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[31] George H. Brown in Lincoln H. Clark and Nelson N. Foote (ed.), *Household Decision-Making* (New York: New York University Press, 1961), p. 229.

Favorableness of Post-Decision Evaluation

Reinforcement or reward leads to increased probability of repurchase. Purchasing behavior, however, is more complex than the problems posed in experimental research; for example, the need motivating the purchase may be social which is probably far more ambiguous than are the innate drives which have been emphasized in experimental research. Also, the time lag between the actual purchase and the receipt of reinforcement may be great; for example, it is difficult to adequately evaluate a new automobile in less than a year. Finally, as will be seen in Limited Problem Solving, there are a number of dimensions of the alternatives; and insofar as a number of them are psychologically relevant in any specific case, the buyer may receive satisfaction from one dimension but not from another, such as an alternative with a low price but also a relatively low quality. All of these make it difficult for a buyer to evaluate his actual purchases.

Reward is a feedback by which the buyer tends to correct his behavior in terms of his needs. It is hypothesized in learning theory that for the predisposition to develop from the reward, only a certain minimum reward is necessary, in a sense, only enough reward to provide the feedback. This suggests that because of its effect through *K*, an exceptionally good brand may have a better chance of eliciting a current response, although it will contribute no more to increased predisposition than a not-so-good brand.

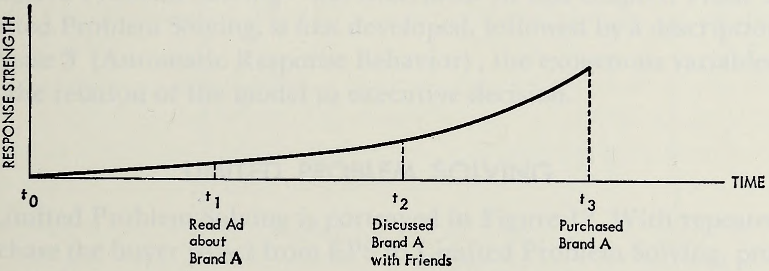
In the complex behavior that characterizes much of Extensive Problem Solving, it is not difficult to envision how reinforcement could operate *over the series of related acts* that often eventuate in a purchase; behavior is being guided so to speak. A buyer reads an ad about a refrigerator; a few days later he talks to friends about it; and finally, a month later he buys it. One or all of three mechanisms may operate.

First, there is learned reinforcement which was mentioned in the basic behavioral model. It is often referred to as "secondary reinforcement," though it could just as well be tertiary, etc. The buyer reads the newspaper only because he was previously reinforced for doing so, e.g., by improving his ability to converse with friends. The chain of responses and reinforcements that lead to current behavior can be quite lengthy and may have required years to develop. Also, the buyer learns a "set." That is, he "learns to learn"; in the past he has been rewarded for doing new things such as trying new products.

A second mechanism is the gradient of *temporal* effects of reinforcement. When the buyer is rewarded by satisfaction from the purchase, each response in the whole succession of responses that led to the purchase is reinforced, the most recent being reinforced the most. In terms of our previous example, the probability of the act of purchase is enhanced more than is the probability of discussion with friends.

FIGURE 11

Gradient of Temporal Effects of Reinforcement



The gradient of temporal effects of reinforcement is shown in Figure 11. Time is on the horizontal axis, specifically, the time that certain acts related to the purchasing process occurred. Response strength is on the vertical axis. The more recent event (the purchase) is the most reinforced event as shown by the level of response strength at t_3; the act of reading the ad was but little reinforced; discussing the brand with friends was more reinforced but not nearly as much as the act of purchase. The third mechanism helping to explain complex behavior (generalization) will be discussed in Chapter 4 in connection with the variable State of the Alternatives.

In a way, contrary to what has been said about the effects of reward, some interesting evidence suggests that insufficient reward may cause the buyer to actually increase his evaluation of an alternative.

Insufficient reward from an alternative causes dissonance. The rational behavior (superficially) would be to change brands, but this may require additional effort and the expenditure of time, e.g., shopping. As an alternative to changing brands, the buyer may raise his evaluation of the brand he is currently buying. Perhaps, this phenomenon explains the price-quality association that is sometimes alleged to exist—a buyer thinks a brand is better because the price is higher. With an important item, such maladaptive type of behavior would not necessarily continue for a long period, however, particularly if the difference in quality between the alternatives was considerable.

Chapter
4

DEMAND ANALYSIS
(Continued)

In Chapter 3, the most complex form of buying behavior—Phase 1, Extensive Problem Solving—was described. In this chapter, Phase 2, Limited Problem Solving, is first developed, followed by a description of Phase 3 (Automatic Response Behavior), the exogenous variables, and the relation of the model to executive decision.

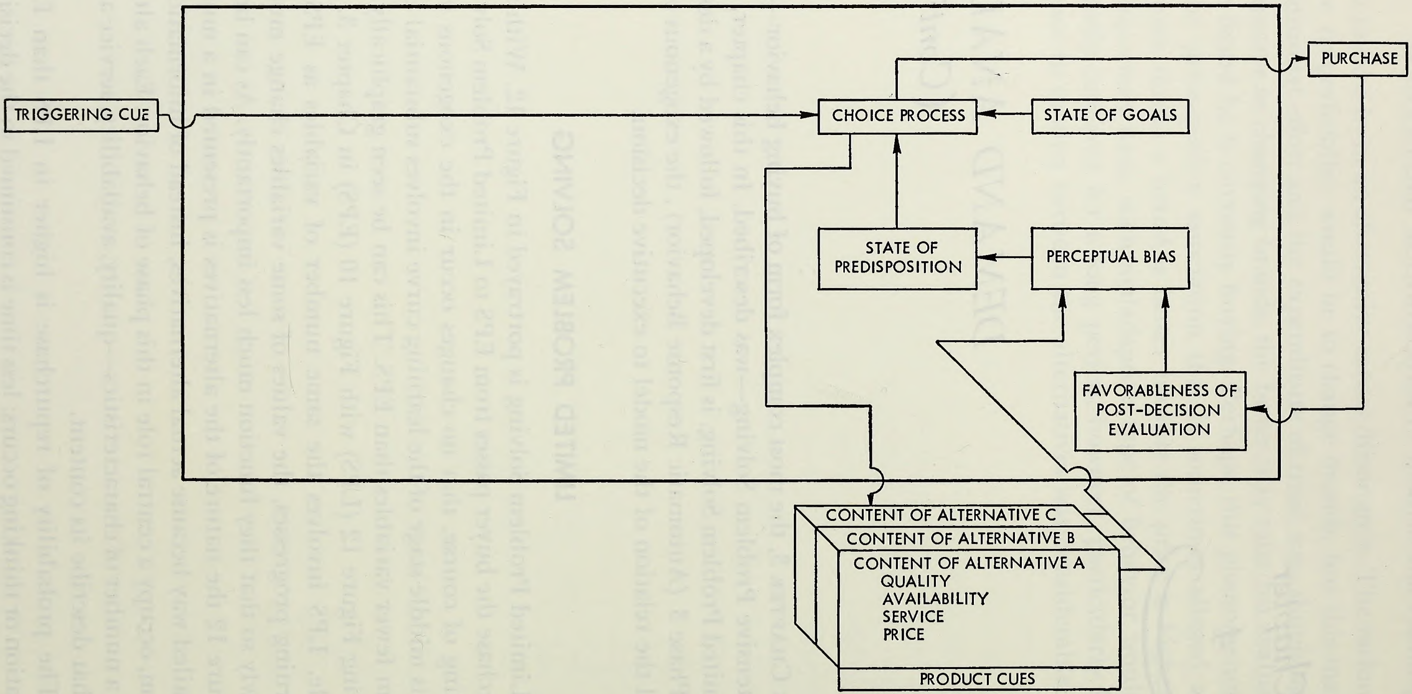
LIMITED PROBLEM SOLVING

Limited Problem Solving is portrayed in Figure 12. With repeated purchase the buyer passes from EPS to Limited Problem Solving, providing of course, that no changes occur in the exogenous variables. This middle stage of the learning curve involves substantial influence from fewer variables than EPS. This can be seen graphically by comparing Figure 12 (LPS) with Figure 10 (EPS) in Chapter 3. In principle, LPS involves the same number of variables as EPS, but as learning progresses, the values of some variables change much more slowly so that they function much less importantly. As can be seen in Figure 12 the nature of the alternatives is presented in a much more detailed way because actual alternatives, instead of information about them, occupy a central role in this phase of behavior. Each alternative has a number of characteristics—quality, availability, service and price—that describe its content.

The probability of repurchase is higher in LPS than EPS; less ideation or thinking occurs; less time is consumed in the decision proc-

FIGURE 12

Limited Problem Solving


TRIGGERING CUE
CHOICE PROCESS
STATE OF GOALS
PURCHASE
STATE OF PREDISPOSITION
PERCEPTUAL BIAS
FAVORABLENESS OF POST-DECISION EVALUATION
CONTENT OF ALTERNATIVE C
CONTENT OF ALTERNATIVE B
CONTENT OF ALTERNATIVE A
QUALITY
AVAILABILITY
SERVICE
PRICE
PRODUCT CUES

ess; fewer alternatives are considered; and product cues play a greater role than information cues. In this section attention is focused only upon the static features of the State of the Alternatives; the consequences of change in the State of Alternatives are discussed later when all the exogenous variables are examined.

A number of the concepts discussed here for the first time are directly applicable to Extensive Problem Solving situations, but it was expositionally awkward to treat them earlier. Also, some of the concepts set forth in EPS can be described more precisely at this point.

State of the Alternatives

What the alternatives are for the buyer—his subjective alternatives—is not an easy question to answer. Only a few experimental studies can be drawn upon to suggest how sets of alternatives appear to be defined, how they change with experience, how such changes are detected, etc.

Does the buyer actually consider all the available brands of cigarettes or does he think only of Luckies, Old Golds, and Chesterfields? What new brands are there in the array of considered cigarettes? What are the mechanisms by which the buyer's attention is called to these new brands?

Dimensions of Alternatives. State of the Alternatives—incentive objects, the *K* in the behavioral equation—can be described in terms of number, content, and distinctiveness. The content has a number of dimensions: price, quality, availability, and service.

1. *Price* is stated in monetary units but is deflated, and it, therefore, is in real terms; this eliminates differences caused by inflation over time and between two places at a given time. In behavioral terms, the price is an auditory-visual cue that permits the buyer to discriminate the consequences of his buying behavior for future goal attainment. Except for the fact that a buyer's funds are limited and the purchase of one alternative causes him to forego another alternative, price is just another cue, and the following principles apply to it:
    - *a*) Cues may be associated with positive or negative primary reinforcements and become secondary reinforcers; price could be associated with foregone alternatives and be a negative reinforcer, or it could become associated with quality–the price-quality association–and be a positive reinforcer or it could be associated with both simultaneously.
    - *b*) Cues may be subject to little discrimination of response such as when two prices are similar.
    - *c*) Cues may be subject to the generalization principle discussed below.

2. *Quality* is a global term that includes *all* those characteristics of the brand that are relevant to the buyer and that are not included in the other dimensions of content, namely, price, availability, and service.
3. *Availability* is the inverse of the amount of effort that must be put forth in order to obtain the brand once the choice is made, e.g., the proximity of the retail store that stocks it; effort tends to inhibit a response. Technically, the term is "reaction inhibition" which may be very important for marketing purposes.
4. *Service* has to do with such things as home delivery, the maintenance of a car or refrigerator after purchase, and any of the many elements of the transaction that do not fit into the above categories. In terms of the behavioral equation, the service elements exert their effect through K.

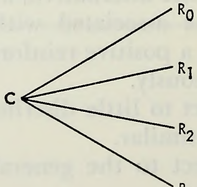
The economic concept of "product" is used here, in which products are distinguished by "the break in the chain of substitution"; items between the "breaks" are "brands" or "suppliers." *Distinctiveness of alternatives* is the psychological "distance" among the substitutable alternatives on each relevant dimension of choice: price, quality, availability, and service.

Number of alternatives are those alternatives that are sufficiently substitutable that they can be viewed by the observer as elements in a set of alternatives.

The alternatives can be conceptualized in terms of "the buyer's *criteria* of selection." "Criteria" implies responses to the discriminative cues that from the buyer's viewpoint characterize the brand. Thus, the set of criteria that the buyer applies to a brand is a pattern of *product cues,* and behavior is explained in terms of this cue-response connection that is learned. Criteria are cues that exist subjectively for the buyer, that for him are motivationally relevant cues—those related to his drives and goals.

In order to simplify, let us begin by assuming that Brand A constitutes a single cue (see Figure 13). A number of responses can be made to this cue: R_0 is "not to buy it"; R_1, "to buy one unit"; R_2, "to buy two units"; etc. Which response actually occurs depends upon

FIGURE 13
SINGLE-CUE RESPONSES



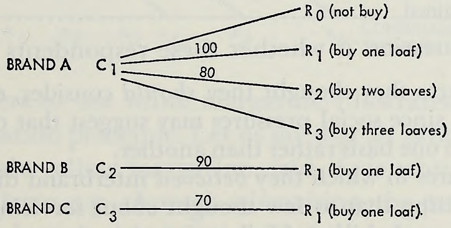
the number of times each response has been reinforced—the effect of Favorableness of Post-Decision Evaluation—and upon the values of K and V. V is relevant because the cue might differ among brands, e.g., color of wrapper. D would be constant because it is an organismic (internal) variable.

Now, extend this argument to the multicued situation that would seem to characterize most purchasing situations; for example, every brand has the three dimensions of price, quality, and availability which would seem to require multiple cues if the buyer is to discriminate effectively, but it is conceivable that one cue could incorporate all of these dimensions simultaneously.

Assume in Figure 14 that the alternatives are brands of bread. A *pattern* of cues corresponds to each of the brands, A, B, C, etc.: C_1 to A, C_2 to B, C_3 to C. Since there are a number of possible responses to each brand, the question is which of the responses will he choose. The rule still holds: the response that has been reinforced the greater number of times will occur. This conclusion applies, of course, only if D, K, and V are constant among all trials. The two- and three-digit numbers shown in parentheses on the lines leading from C to R indicate the number of times that each cue-response connection has been reinforced.

FIGURE 14

MULTIPLE BRANDS, CUES AND RESPONSES



The buyer will take one loaf of Brand A, i.e., C_1R_1. However, let us complicate the problem by assuming that the seller of Brand A has recently changed his package to contain two loaves, now the minimum that can be bought. Under these conditions, the buyer will take one loaf of Brand B, i.e., C_2R_1. If C_2 were not available, however, he would take C_1R_2 rather than C_3R_1.

Discrimination-Generalization. Selection among alternatives involves the psychological process of discrimination which refers to the specificity of the cue-response connection. If a response to one pattern of cues is rewarded but the response to another pattern is not, the buyer gradually establishes a discrimination—*P* increases—in favor of the former response. "Perceptual discrimination"—the tendency to discriminate among brands by looking at them rather than by "experiencing" them as through consumption—is important in purchasing such as in discriminating among packages.

Let us examine the empirical evidence on cues that buyers use in discriminating among alternatives. Some experimental evidence in a nonbuying context suggests that no more than nine nor less than five cues are used. Katona and Mueller give data on the number of features that buyers said they considered in purchasing consumer durables which may be suggestive, but no more, of the number and content of cues used:[1]

Features	*Per Cent of Buyers*
Price	6
Brand	21
Mechanical properties	21
Performance	9
Size or capacity	19
Appearance	13
Durability, servicing, guarantees, reliability	2
Operating costs	1
Other	3
No specific features	39
Not ascertained	3

An important question is whether these respondents talked about—

1. Those features they thought they *should* consider, e.g., the mechanical aspects, since social pressures may suggest that one ought to discriminate on one basis rather than another.
2. Those features in which they *believed* interbrand differences existed (it is surprising that so few thought about servicing arrangements, but perhaps probability of failure is so low that people do not think about servicing the appliance).

The semantic differential, referred to earlier, offers some hope in describing more precisely the content of cues used by buyers.

The opposite of discrimination is *generalization.* If the alternatives are viewed by the buyer as being closely similar, he may *generalize* from the alternative to which he has been responding to a similar alternative and buy the latter. The concept was introduced earlier as one mechanism for explaining the sequence of related acts that lead up to a purchase in the purchasing process; it also may be the mechanism by which the buyer adapts to new alternatives.

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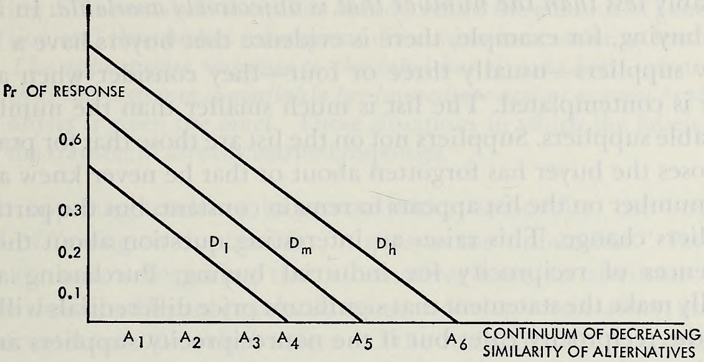
[1] George Katona and Eva Mueller, "A Study of Purchase Decisions," in Lincoln H. Clark (ed.), *Consumer Behavior* (New York: New York University Press, 1955), p. 49.

The tendency to generalize is described by the well-studied *gradient of generalization.* In Figure 15 the alternatives are arranged in decreasing order of similarity on the horizontal axis; three different levels of drive—low (D_1), medium (D_m), and high (D_h)—are shown as the functional relations. With low drive (D_1) the probability that the buyer will take the first alternative is 0.3. *If for some reason the first alternative is not available,* the probability is 0.2 that he will take the second alternative. Should drive become higher, such as D_m, the probability that he will respond to the first is increased to 0.6, etc.

FIGURE 15
Gradient of Generalization



Getting buyers to use white margarine illustrates the application of the generalization principle. Let us say that A_1 is bright yellow margarine, A_2 is pale yellow margarine, and A_3 is white margarine. By increasing the drive, e.g., through advertising, the probability of buying A_1 could be increased to 0.9; then if A_1 is removed, the buyer will generalize to A_2. Further, increase in drive would cause him to generalize to A^3 with a higher probability of purchase. The concept of generalization thus suggests that to get a buyer to accept a new product, it may be necessary to somehow simulate the learning dilemma. This means placing him in a situation where his old responses of buying a particular brand cannot be rewarded, which can be done, for example, by discontinuing its availability (a company may do this by introducing a new product that replaces its existing product).

Discrimination-generalization is one of the central aspects of choosing among alternatives; information seeking is only a means to this end. A number of questions arise. First, what is the range of generalization that occurs empirically? Another way of stating it is:

"How many alternatives do buyers consider?" The "number" dimension of the State of the Alternatives was mentioned earlier; do buyers consider all of the alternatives that are objectively available? Empirical evidence suggests that they do not; for example, Katona and Mueller[2] report that in purchasing consumer durables, 33 per cent of the buyers considered only one brand. It could be argued, of course, in terms of the model set forth here, that the market for consumer durables has been stable long enough for most of the buyers to have passed into Phase 3 (Automatic Response Behavior) and that this explains the finding.

The concept of *evoked set* is helpful: when a buyer considers making a purchase, the number of alternatives that come to his mind are probably *less than the number that is objectively available.* In industrial buying, for example, there is evidence that buyers have a list of a few suppliers—usually three or four—they consider when a purchase is contemplated. The list is much smaller than the number of available suppliers. Suppliers not on the list are those that for practical purposes the buyer has forgotten about or that he never knew about. The number on the list appears to remain constant, but the particular suppliers change. This raises an interesting question about the consequences of reciprocity for indutrial buying. Purchasing agents usually make the statement that significant price differentials will override the reciprocity rule; but if the nonreciprocity suppliers are not members of the buyer's evoked set, how does he know about the existence of price differentials? Consumer panel data suggest that consumer buyers exhibit a similar tendency to the use of the evoked set, at least under some circumstances.

The generalization concept has many implications. To the extent that the "distance" between alternatives is small, the buyer is more likely to generalize from one to the other, particularly as drive is increased. Also, a response to purchase can generalize to new cues; for example, how likely is it that Competitor B's advertising will cue the person to buy Brand A? Under what conditions is this probable?

Another aspect of discrimination is that a buyer may be able to discriminate but not identify brands. This has been observed, for example, in blindfold tests in cigarettes and beer.

Presumably, for those brands he cannot identify, the buyer generalizes from one product to another merely by transferring the brand name as a label. If the same label is attached to different brands, these brands are responded to in a less discriminative fashion; attaching different labels to the same things makes them appear different. It is helpful to think in terms of the following levels of generalization and discrimination:

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[2] *Ibid.*, p. 48.

1. *No labeling occurs.* Those situations in which choice is based solely on innate similarities and differences. A buyer considers brands only in terms of their *innate* characteristics, and he generalizes to similar brands only in terms of these characteristics. If the purchase of a brand is reinforced repeatedly, he establishes a discrimination, a preference, for it.
2. *The label is already learned, but the appropriate response to the label is still to be learned.* These brands have innate similarities or differences which are enhanced by appropriate labels. Attaching the same labels to different cues increases the amount of generalization. Attaching different labels to similar cues decreases the amount of generalization and thus makes subsequent discriminations easier to learn.
3. *The appropriate response to the label has already been learned, and thus the response is available for immediate action as soon as the new object is given the label.* Those situations in which the labels aid in the transfer of already learned responses.

An opposing tendency to generalization is novelty; the buyer instead of "going to the familiar," "goes to the unfamiliar." Psychologists are now recognizing that alternatives have an attribute which can be described by three related terms: novelty, uncertainty, and lack of information. "Novelty" refers to "the unfamiliar"; "uncertainty," to ambiguity of cues. "Lack of information" describes a situation where the buyer for any reason is unable to evaluate the consequences of a purchase. Novelty can be conceptualized as part of the K variable since stimuli which are novel have been found in laboratory experiments to be reinforcers in themselves. Consequently, it may be that the novelty-generalization distinction is a useful way of thinking about the buyer's response to innovation. For example, novelty may be a good marketing principle to use with a frequently purchased product, while generalization may be good to use with an infrequently purchased product. This idea will be dealt with in Chapter 10.

Let us relate the model here to the topic of "uncertainty" which is receiving increasing attention in both economics and psychology. Psychologists often use "ambiguity" to mean what economists call "uncertainty," but we must specify that the ambiguity is used with respect to the cues. See Figure 16. In the left-hand column, the number of reinforcements are so similar among the cues that there will be little difference among them in the tendency for the buyer to respond. If he is uncertain with respect to the occurrence of triggering

FIGURE 16

UNCERTAINTY—AMBIGUITY OF CUES

Low Certainty		*High Certainty*	
C_1–R_1	100	C_5–R_5	100
C_2–R_2	99	C_6–R_6	50
C_3–R_3	98	C_7–R_7	10
C_4–R_4	97	C_8–R_8	1

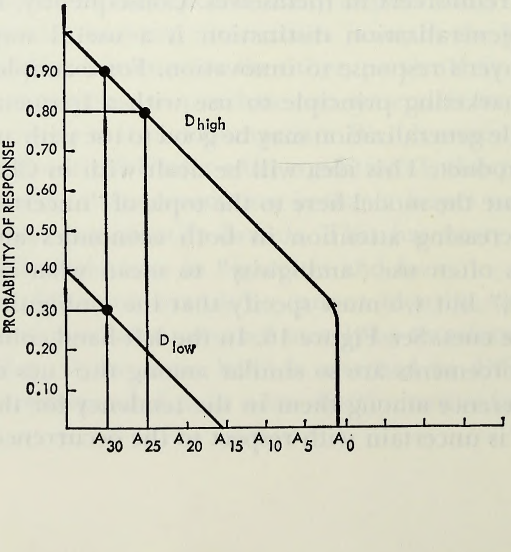
cues or to future reinforcements, his response pattern will tend to be unstable—he will exhibit a number of competing responses in relatively rapid succession.

It is now possible to make explicit a point of view that has been implicit in all the discussion. A useful way of looking at the decision process may be to view it as *uncertainty reduction:* a decision occurs when uncertainty is reduced to some minimum level.

Finally, the generalization concept can be used to describe more precisely the meaning of perceptual bias, a concept that was discussed earlier in connection with Extensive Problem Solving. On the horizontal axis of Figure 17 a series of different cues are arranged in descending order showing the number of times the responses to each cue have been reinforced. With low drive and given the cue-reinforcement pattern as shown in the diagram, the probability is 0.3 that the buyer will respond to the cue of A_{30}. With high drive the probability would be 0.9. If A_{30} were not available, there is a 0.8 probability that the buyer would generalize to A_{25} and buy it. If he is re-

FIGURE 17

PERCEPTUAL BIAS



warded when he discriminates among alternatives according to one cue, rather than another, e.g., delivery date instead of price, he will respond to that cue in the future. Perceptual bias is indicated in that, with low drive, cues A_{15} to A_0 would not be "seen," and therefore no response would be made to them.

The analysis assumes that the magnitude of the reinforcement (K) and the strength of the triggering cue (V) is the same among all alternatives in each trial; this is important because in actual purchasing some interalternative differences in K and V would be expected.

Finally, it is possible that cues exist, as is illustrated by alternative A_0, to which response will not be generalized at all. The buyer would ignore these cues, and so we would have the truncated high-drive gradient of reinforcement for A_0 as shown in Figure 17. This possibility is perhaps largely hypothetical, however, because the buyer is not likely to have encountered any cues in his environment which may be regarded as "entirely" dissimilar to cues to which responses have been conditioned.

AUTOMATIC RESPONSE BEHAVIOR

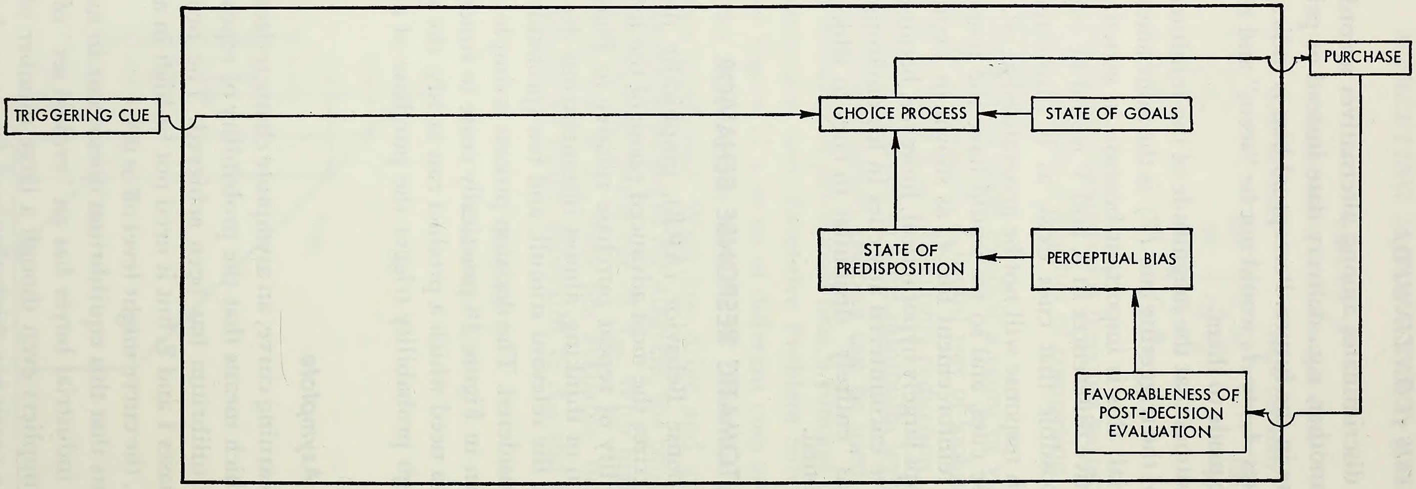
Automatic Response Behavior (ARB), graphically described in Figure 18, characterizes the most advanced phase of the learning process: high probability of repeat purchase relative to Phase I and 2, little or no ideation or thinking, almost instantaneous decision time, triggering cues are the relevant stimuli, and few (probably only one) alternatives are considered. The decision process is simple; all but the few variables shown in Figure 18 practically cease to function. If the buyer experiences a need which a product can satisfy, the presence of a cue will with high probability trigger the purchase of a *particular* brand.

Description of the Asymptote

In terms of the learning curve, an asymptote characterizes the upper reaches of ARB which means that the probability of repeat purchase is constant; the equilibrium has been achieved. The probability is high relative to Phases 1 and 2, but it need not be high in an absolute sense; for example, the curve might level off at 0.4.

Evidence suggests that this equilibrium does occur in much industrial buying. The industrial buyer has an "evoked set" of often not more than three suppliers even though a large number of suppliers exist. Whenever he receives a triggering cue, for example, a requisition, he automatically places it with one of the three suppliers. Just

FIGURE 18
Automatic Response Behavior


TRIGGERING CUE
CHOICE PROCESS
STATE OF GOALS
STATE OF PREDISPOSITION
PERCEPTUAL BIAS
FAVORABLENESS OF POST-DECISION EVALUATION
PURCHASE

what the mechanism is by which the purchases are allocated has not been well studied, but a probabilistic model will perhaps explain it. The probabilities might be, for example, 0.4, 0.4, and 0.2, if he did not expect change in some of the exogenous variables, particularly the State of the Alternatives, such as one supplier having a strike and being unable to meet the buyer's needs. The low brand loyalty that characterizes the detergent market suggests that perhaps this same behavior whereby the buyer concentrates his purchases on a few brands holds for the consumer buyer, although price ("deals") and product changes obscure it in practice.

A unique characteristic of Phase 3 of the learning process may be that the specific alternatives in the evoked set are constant, whereas in Phase 2 an evoked set exists but its constituent members change, while in Phase 1 the evoked set does not even exist.

Predictions about Behavior

Kuehn's study of frozen orange juice provides estimates of the empirical probability of repurchase.[3] The study deals with only four consecutive trials rather than the individual's entire purchasing history. But even over this short period the effects upon *P* are large: the probability increased from 0.33 when Snow Crop had been bought on the last trial only (*OOOS*) to 0.80 when the last four purchases had been Snow Crop (*SSSS*). Whether there were systematic changes in *D, K,* or *V* during this period is not known.

In this phase, *D, K,* and *V* can all influence the buyer, but the specific relations remain to be systematically worked out. An equally fundamental question pertains to the ways in which marketing effort exerts its influence upon *D, K,* and *V;* this problem, too, has hardly been considered.

EXOGENOUS VARIABLES

Up to now, it has been assumed as a simplifying device that the exogenous variables were constant. Now, their content, their sources of change, and their consequences will be examined. Figure 19 identifies these exogenous variables and shows many of their consequences in terms of their effects upon the buyer through the endogenous variables. Their content will be discussed below, but their sources of change are not examined systematically because the purpose is to attempt to gain an understanding of the endogenous variables; how-

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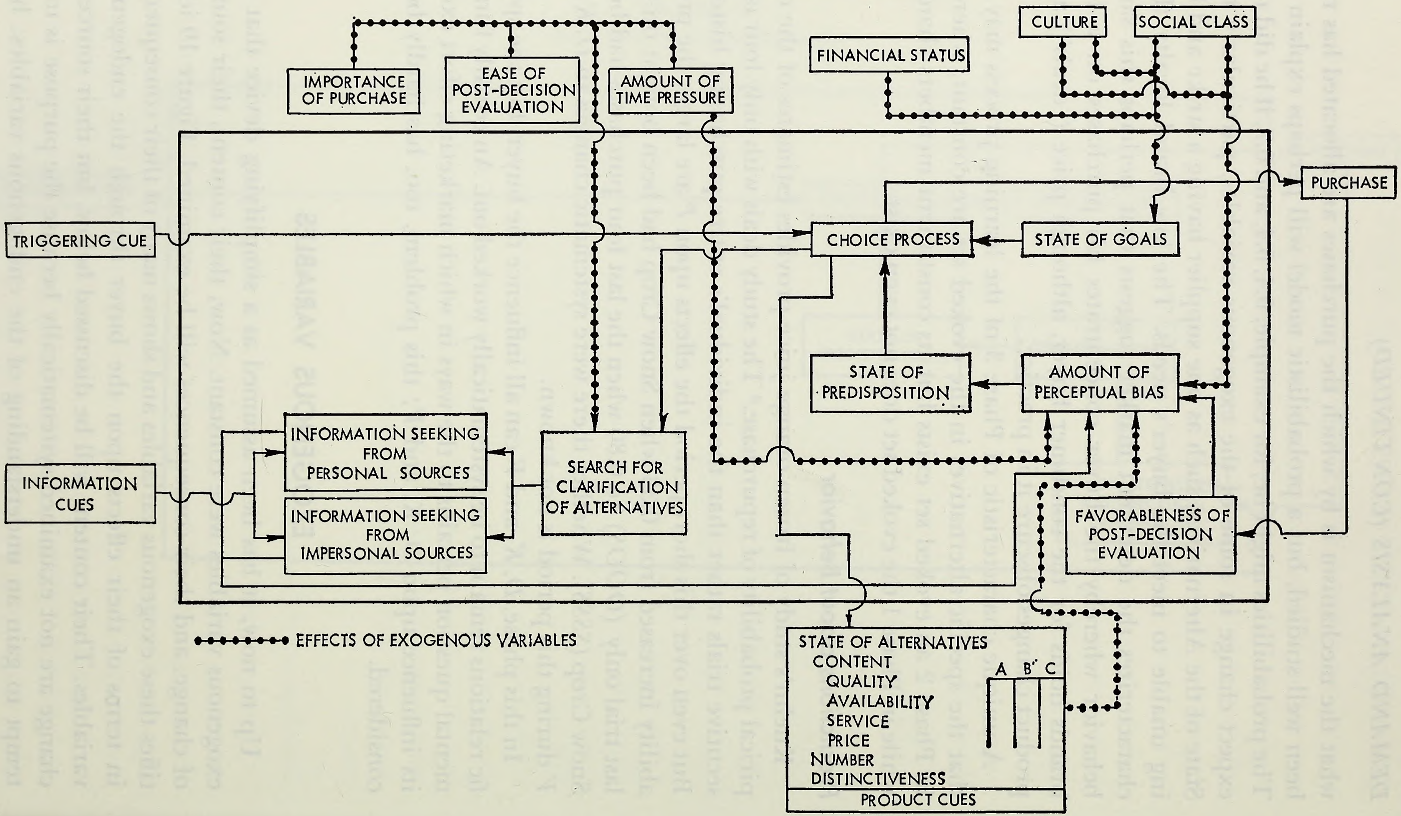
[3] John A. Howard, *Marketing: Executive and Buyer Behavior* (New York: Columbia University Press, 1963), p. 117.

FIGURE 19

THE EXOGENOUS VARIABLES AND THE LEARNING PROCESS


IMPORTANCE OF PURCHASE
EASE OF POST-DECISION EVALUATION
AMOUNT OF TIME PRESSURE
FINANCIAL STATUS
CULTURE
SOCIAL CLASS
PURCHASE
TRIGGERING CUE
CHOICE PROCESS
STATE OF GOALS
STATE OF PREDISPOSITION
AMOUNT OF PERCEPTUAL BIAS
INFORMATION CUES
INFORMATION SEEKING FROM PERSONAL SOURCES
INFORMATION SEEKING FROM IMPERSONAL SOURCES
SEARCH FOR CLARIFICATION OF ALTERNATIVES
FAVORABLENESS OF POST-DECISION EVALUATION
EFFECTS OF EXOGENOUS VARIABLES
STATE OF ALTERNATIVES
CONTENT
QUALITY
AVAILABILITY
SERVICE
PRICE
NUMBER
DISTINCTIVENESS
PRODUCT CUES
A
B
C

ever, some of the sources of change are roughly indicated so that the executive may have a better understanding of the problem of anticipating changes in the exogenous variables.

Changes in the exogenous variables can change the nature of the decision process; in general terms, changes in them can cause a decision process that was ARB to become LPS or even EPS, or the changes can have the opposite effect of converting EPS to LPS or even ARB. More specifically, over a period of time, exogenous variables are useful in explaining differences in the behavior of a given individual choosing the same product (these variables are, for example, State of the Alternatives, Amount of Time Pressure, and Financial Status); differences in the behavior of a given individual choosing different products (for example, Ease of Post-Decision Evaluation and Importance of Purchase); and differences in behavior among different individuals choosing the same products (for example, Social Class and Culture).

One of the pressing questions is: What is the nature of the mechanisms by which the buyer detects changes in the exogenous variables? At the most overt marketing level, shopping is clearly such a mechanism. Psychologically, concepts of novelty, uncertainty, and information have been referred to as well as the curiosity motive. By and large, the significance of these concepts for buying behavior remains to be worked out.

State of the Alternatives

This variable was discussed earlier from a static point of view; that is, the question was: "Given the state of the alternatives, how does the buyer respond?" Now a dynamic view is taken, and the question is asked: "How does the buyer respond to *changes* in the state of the alternatives?"

A brand or supplier is really a "pattern" of cues. The widely used term "brand image" is an example of this concept; by "image" we mean a description of the buyer's attitude toward a number of cues related to the brand's attributes. The content, distinctiveness, and number of alternatives, of course, can all be changed.

Source of Change. Product change, a deliberate company policy, is the source of change in the alternatives; also each competitor can change his offering, and change by any one competitor may influence the buyer's view of the other alternatives as well.

Recent research under the heading of "innovation" has contributed to our knowledge of both consumer and industrial buying of new products. The classic study was the analysis of doctors accepting a new antibiotic for their patients. When an investigation of the process by which farmers accepted hybrid seed corn is compared with the innovation process among doctors, a number of the drug study findings are strengthened.[4]

Both studies show that information about the innovation was not sufficient to stimulate acceptance: people knew about it before they adopted it. Legitimation was necessary. Furthermore, some channels of influence served to inform, while other channels of influence served to "activate" or "legitimate" the decision to adopt. The former tend to be more commercial and more formal; the latter more professional and more informal. The salesman is a key source of information in both studies; interpersonal influence among colleagues serves a legitimating function.

Less information is available about industrial innovation. In a study of such innovation as diesel locomotives, car retarders, continuous wide-strip mills, continuous mining machines, and high-speed bottle fillers, three variables provided an almost complete explanation of the rates of innovation: (1) the number of companies that had already adopted the innovation, (2) its profitability, and (3) the amount of investment required. The first variable sounds much like "interpersonal influence" in the concept of social structure. The magnitude of investment was a negative influence.

Predictions about Behavior. A change in an alternative requires a new learning process so that greater instability in brand loyalty, at least temporarily, would be predicted; there is evidence that consumers decrease the quantity of their purchases when they try a new brand. An explanation of this decrease in quantity is that with a new brand P is low; therefore, amplitude, which is one measure of B, would be expected to be low. The change in an alternative results in a shift in the "hierarchy of the family of responses" so that the probability of repurchasing the changed product is decreased. When only one brand changes, information theory research on novelty suggests a temporary shift to the changed brand even though its innate quality might not be improved; but as the learning process operates over a larger number of trials, the relevant primary drives or closely associated secondary drives—other than novelty need—would be expected to have a greater effect.

The change in brand presumably causes incongruency between attitude—the attitude now favors the new brand—and purchasing behavior which tends to "prefer" past purchases; from this a number of predictions about the consequences of dissonance for perception are possible.

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[4] E. Katz, "The Social Itinerary of Technical Change: Two Studies on the Diffusion of Innovation," *Human Organization,* XX (1961), 70–82.

Amount of Time Pressure

By time pressure is meant the amount of time available for the decision in relation to the task involved in making the decision; each buyer allocates his scarce time among alternative purchases. He must allocate his total time between purchasing and nonpurchasing activities.

Source of Change. It is easy to imagine many conditions where other demands upon the buyer's time cause a variation in the time available to purchase a particular product.

Predictions about Behavior. Search for Clarification of Alternatives is positively related to Amount of Time Pressure. As stress and time pressure are pushed to the limit, however, search may become vigorous, but stereotyped and ineffective. Time pressure is positively related to perceptual bias. Finally, time pressure is negatively related to decision time. Thus, the choice will depend significantly upon the order in which the alternatives are examined: the alternative examined first has a higher probability of being chosen.

Importance of Purchase

Intuitively it would seem that whether a purchase is important or unimportant would make a difference in buying behavior, e.g., the amount of attention given to the act of buying. "Importance of a purchase," however, is merely another way of describing goal intensity. Specifically, an "important purchase" is one for which the buyer's needs are at a high level. If so, why have two variables to describe the same thing? Common observation suggests that there are large differences among social classes and cultures in intensity of buyers' needs with respect to particular products, and thus, Importance of Purchase is a convenient way of classifying products to reveal significant differences in purchasing behavior. The terms "convenience goods," "shopping goods," and "specialty goods" have long been used in marketing as concepts for classifying products according to the amount of effort the consumer expends in shopping for them.

How can Importance of Purchase be measured? For many purposes the magnitude of the price is probably a satisfactory measure, but where the purchase has social implications, the magnitude of the price may not be a good measure. The significance of this variable in industrial purchasing is evidenced by the criterion of whether to apply value analysis, which is the magnitude of the funds expended annually in buying the product. Unit price would not necessarily be an appropriate measure here either since there is not a necessary relation between unit price and annual expenditure for a product.

Source of Change. Clearly, the importance of a purchase varies among social classes and cultures, but further research probably will reveal that it varies in other ways.

Predictions about Behavior. The evidence that Importance of Purchase makes a difference in behavior is considerable. In laboratory studies of risky choices, it has been found that when there is no reward for a correct choice, the chooser exhibits "matching behavior": when presented with two uncertain alternatives, such as one with a probability of 0.6 and the other 0.4, he will choose in roughly this proportion. When there is a reward, however, he tends to exhibit optimizing behavior which, in terms of the example, means that he will always choose the alternative with probability 0.6.

In a study of buying, consumers seldom investigated more than one store in the purchase of less expensive items, but in buying large durables, about 50 per cent visited more than one store.

Generally, the more important the purchase the greater the care the person will exercise in buying it and the greater the decision time. However, at the lower values of the variable—where the product is not important—irrational behavior may be exhibited in that the buyer may seek information to justify an uneconomic purchase. At the upper limit, also, the relation may not hold: with large items it may be that the risk is so great that people decide blindly. For example, Lazarsfeld has been quoted as saying that he found this true of some automobile buyers.[5] In stimulus-response terms, this high drive leads to less discrimination, and if the alternatives are presented sequentially, the buyer is likely to take the first alternative.

Ease of Post-Decision Evaluation

Ease of Post-Decision Evaluation has two dimensions: (1) ease in the sense of "task difficulty," and (2) ease with respect to time. First, for some products there are more objective measures of performance than for other products, e.g., a clock can be evaluated in terms of how accurately it keeps time. Second, with some products the satisfaction is received immediately, while with other products it is received over a long period of time, e.g., candy versus an automobile. The reader will recall that delay in reinforcement was discussed earlier in terms of the gradient of the temporal effects of reinforcement. The time element is relevant because the amount of reinforcement would be influenced by how soon the reinforcement is received, and also the amount of reinforcement through its effect on P influences the buyer's behavior on his next purchase. Laboratory studies show that the greater the delay in reinforcement the less effective it is in bringing about learning, although through learned reinforcement the amount of delay is diminished.

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[5] R. A. Bauer, "Consumer Behavior as Risk Taking," in American Marketing Association, *Proceedings of the Forty-third National Conference, Minneapolis, Minnesota (1960)*, p. 390.

Source of Change. Ease of Post-Decision Evaluation appears to be associated with the product, and so changes in it occur when a buyer is choosing among different products.

Predictions about Behavior. Roper's "pattern of hesitation" suggests that the amount of deliberation depends significantly upon how quickly the person can find out whether his decision was a good one; for example, he can find out quickly in the case of cigarettes, whereas it may take a year or so in the case of autos.[6] If the buyer finds that the wisdom of the choice is difficult to evaluate after the decision, he may be more sensitive to the opinions of others and other information because he will be more subject to post-decision dissonance. Inversely, the anticipation of the reactions of other people may affect the length of his deliberation; if he must justify his decision to others, he will probably shop more carefully.

Financial Status

Financial status is the current and expected state of financial well-being. It means different things to consumers than it does to company buyers. To a consumer buyer it pertains to the level of income and the level of asset holdings. The effect of changing income upon consumers has been studied extensively (see Table 1, p. 107). To a manufacturing company's buyer it probably means the level of sales and the level of profits. Changing corporate income levels probably have an effect on the behavior of the purchasing agent that is analogous to the effect of changing income on the consumer; for example, when management attempts to balance costs and revenues in a recession, the industrial buyer is directed to pay more attention to price and less to delivery date.

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[6] P. F. Lazarsfeld, "Reflections on Business," *American Journal of Sociology,* LXV (1959), 6.

Source of Change. The business cycle is the main source of change in financial status, but shorter-term movements as well as the secular trend are relevant. Because of the nature of the private enterprise economy, there is a regularity of change in the Financial Status variable; this regularity causes many buyers to attempt to forecast these changes and to base their behavior on these forecasts. Anticipations about future values of the variable may, in some cases, be almost as important as the current value in conditioning choices. Future research may indicate that buyers also have analogous views about other variables; for example, it may be that *in anticipation* of their higher status, upwardly mobile people purchase accordingly.

Planning is a learned response subject to the laws of learning: we plan because we have been reinforced for such planning responses in the past. Not all people plan, however, due to the fact that for some people the environment does not provide adequate rewards for planning. Planning is a mental process—an attitude toward the future as indicated in Chapter 3—whereby the buyer considers alternatives speculatively and estimates the reinforcement from them.

The failure of middlemen to plan is one of the major justifications for salesmen; the salesman persuades him to stock up, e.g., in advance of a seasonal upswing in sales which increases the probability that the buyer will purchase from this salesman instead of from some other salesman.

Another aspect of the financial variable is that in many instances its major effect may be to influence the decision of "whether to buy" rather than "which brand to buy." There is evidence, however, that when incomes are declining there will be a shift to cheaper brands, and so we can conclude that brand choice is affected. Industrial buyers, as indicated earlier, are found to shift their goals over the business cycle.

Predictions about Behavior. Changes in economic status will probably change the intensity of learned drives: the consumer aspires to a new social position with increased income, but presumably there is both a threshold and a lag. The goals of the company buyer are probably more drastically affected by a change relative to competitors' financial status than by an absolute change in the financial variable which affects business generally, because if competitors' profits are down too, management is less likely to show concern.

There is clear evidence among consumers that the relation between financial status and the purchase of a product is not symmetrical among all products, e.g., durables are affected more than food purchases, as can be seen in Table 1.

The evidence is fairly clear that companies and purchasing agents do anticipate Financial Status and that the outcome of their decisions is influenced by the extent to which these anticipations have been realized in the past. The effect of these anticipations operates not through the industrial buyer directly, but through the company's decision of whether or not to make a capital outlay. The attention given to price changes by the National Association of Purchasing Agents also suggests that industrial buyers attempt to anticipate economic changes.

Consumers make plans to buy postponables, but here the evidence is not as clear as to whether disappointment of anticipations results in changes in plan fulfillment. However, consumer plans to purchase can be used directly as an imprecise predictor of behavior, as suggested by a study of consumer planning in which it was found that 60 per cent of the plans were fulfilled. Moreover, consumers with certain characteristics are more likely to plan and therefore provide better current data about their future behavior than do others. Also, there is some slight evidence that "fulfillers"—those buyers who fulfill their plans—and "nonfulfillers" may differ with respect to age, occupation, income, and family size. If this is verified, we may be able to identify dependable planners whose plans can aid in making predictions. Thus, in terms of Figure 19, it can be said with confidence that expectations and plan fulfillment are related only for industrial buyers and not consumers, but that some consumers do "anticipate" price changes and behave accordingly.

Katona and Mueller[7] find that higher-income people deliberate more on durables while lower-income people deliberate more on sport shirts. Is this because low-income people find the purchase of a large item a traumatic experience with considerable anxiety, or because breakdowns occur more in durables and must be replaced immediately without time for deliberation?

Social Class

Social class differs from the concept of the social "group" discussed in connection with Extensive Problem Solving. It is referred to as a type of social collectivity or aggregation and does not necessarily involve face-to-face relations. It is defined as ". . . a structure of regularized inequality in which men are ranked higher and lower according to the value accorded their various social roles and activities."[8]

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[7] Katona and Mueller, *op. cit.*, pp. 54–58.

One of the most significant features of the Social Class variable is its implications for the individual's goals; we have already discussed the problem of changing status and goals, but not the relation between status and behavior.

In order to understand the effects of this variable let us state the logic of social class. First, in a complex society people must specialize their activities, and this specialization requirement gives rise to different roles as defined in Chapter 3, or "role differentiation." Different occupations are the result. Particularly relevant here is the question of why the housewife takes the major role in purchasing for the family. Is it because (1) our culture represents a matriarchal society; (2) the housewife is competent; (3) the husband is not interested in family purchasing decisions; (4) the purchasing area has been "traded" for another area where the husband makes the decisions, or (5) the housewife is so perceptive and so aware of the family needs that she makes the kind of decisions the family would come to anyway?

Second, society attaches different values to roles; some are considered more important than others. This valuation arises for two reasons: (1) As a result of specialization, each man is the means to another man's end; people need each other. (2) In order to have an integrated society, a more or less common set of values must be shared.

There is significant overlap between Social Class and Financial Status, but they are by no means identical. It may be easier to identify social classes by income, especially for operating research purposes, but the difference in behavior among classes is not so much due to differences in income as it is to basic value difference. *If it were only a matter of income, then individuals with different incomes would merely buy more or less of each item rather than the different items they actually do buy.*[9]

For marketing purposes, where information plays a major role, the concept of social class may be even more important, i.e., meanings attached to particular symbols are probably closely related to class.

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[8] B. Barber, *Social Stratification* (New York: Harcourt, Brace & Co., 1957), p. 7.

[9] This statement assumes away the divisibility problem that in the past has received much attention in economic literature: a product is often not divisible into small enough units, e.g., an automobile, so that only a great increase in income would be sufficient to justify the purchase of a second unit.

Warner stresses the implications of social class for language and speech habits.

The relevance of the social class theory to marketing can be stated in terms of the congruence hypothesis which is as follows:

1. Equilibrium exists where there is agreement ("congruence") between behavior and class values.
2. Where incongruence between behavior and values exists, the individual will purchase to attain congruence.

Source of Change. First, a given individual may change in status—he may be upwardly or downwardly mobile—but these changes occur slowly. Much more important is the fact that a company's market may cover the whole range of class structure rather than being restricted to one or two strata, at the most.

Predictions about Behavior. Specifically, how is the influence of class manifested in purchasing? Different classes buy different products. Also, one study suggests that different social classes accept some new products at different rates, but it is not clear how much of this difference was due to interclass differences in innovation rates per se and how much was due to difference in tastes which would be apparent even after the innovation period.

Does the influence of class occur through perception? Some limited data suggest that there are significant differences among social classes as to how they view products.

Social pressures against careful shopping vary among classes. ". . . a number of studies show that in many instances the middle-class consumer is more given to deliberation than is the lower-class consumer."[10]

What is the influence, if any, among social classes in their purchasing behavior? A common belief is that "lower social strata accept fashions, values and ideals of the higher strata." Katz and Lazarsfeld, however, suggest that if this transmission occurs at all, it is not direct; at least with respect to small products, they found little interchange across class boundaries.

Is the relative importance of social class changing? What distinguishes the buying behavior of those people moving up the social scale? According to the congruence hypothesis, when a person achieves a new status he will make a rash of purchases directed to achieving congruence. Does this principle apply to downwardly mobile buyers? These and many other questions need answering.

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[10] Bauer, *op. cit.*, p. 394.

Culture

Culture, like class, is another social aggregation or collectivity; however, culture is broader and its effects are more fundamental. Culture includes differences in values, although it is much more extensive. Culture consists of traditional ideas—especially their attached values; by "values" is meant what is considered good and appropriate or bad and inappropriate. A helpful statement of the nature of culture and its consequences for behavior follows:[11]

> . . . each culture . . . created a special plight to which the individual must adjust. The human plight was in no sense universal save in this fact: that however different the culture might be, it had certain common problems to deal with–death, childbirth, gather food, etc. But each culture handled these problems differently, developed a special way of life. These ways of life created special needs, special responses, and led to the development of special personality patterns.
>
> . . . given a set of problems to face, each culture provided a limited range of responses which the person could adopt if he was to avoid the status of a deviant. These permissible response patterns–involving not only overt but also covert responses—again differed from culture to culture. . . . In short, then, the term "culture" implied both a specialized patterning of the individual stimulus situation, and a special patterning of the responses that could be made to it.

Source of Change. Acculturation is a slow process, so that mainly intermarket differences in culture are relevant rather than a *change* in the culture of given individuals.

Predictions about Behavior. Culture significantly influences perception as well as goals. What people perceive and how they conceptualize their perceptions is overwhelmingly influenced by culture.[12] One interesting experiment consisted of placing a picture of a baseball player on one side of a stereopticon slide and a bullfighter on the other. Then it was shown to Americans and Mexicans: Americans tended to see the baseball player, while the Mexicans tended to see the bullfighter.

Though ethnic groups exist together, they still cling to their original culturally determined values. Where two cultures impinge upon each other, there are marginal transaction areas which have the values of both cultures infused so that people in these areas have different purchasing habits than either culture.

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[11] M. Brewster Smith, Jerome S. Bruner, and Robert W. White, *Opinions and Personality* (New York: John Wiley & Sons, Inc., 1956), p. 25.

[12] M. Sherif, *The Psychology of Social Norms* (New York: Harper & Bros., Inc., 1936).

APPLICATION OF MODEL BY ADJUSTING EXOGENOUS VARIABLES

If the reader will attempt to apply the various relationships suggested here to concrete situations from his own experience, he will obtain a much fuller understanding of the buyer behavior model and its usefulness in comprehending the complex topic of buyer behavior. In order to apply it, the reader must (1) specify the nature of the exogenous variables that exist in the concrete situation, (2) explore the workings of the decision process under the conditions specified by the exogenous variables, and (3) analyze the way in which marketing effort could exert an influence under the conditions that make up this concrete situation. For example, let us say that we are attempting to estimate consumer response to a new concentrated milk product. To specify the exogenous variables to this situation we would turn to Figure 9 (Chapter 3) and, moving from right to left, ask what culture our consumers are identified with, e.g., the American culture. Next is Social Class: which social class would they be from? If all social classes are represented, then a separate analysis might have to be conducted for each. Let us simplify by assuming that we are dealing only with the lower middle class.

Next is Financial Status. Let us assume that our buyers are all of the annual income class of $3,000 to $5,000 and that for the period with which we are concerned these incomes are constant.

Importance of Purchase must now be specified. Do we think that concentrated milk is an important product for our consumers? It probably has few social implications to give it value, but during the course of a year, these families may be spending quite a sum for milk. Nevertheless, the cost of the individual purchase is small.

Is the product of such a nature that the consumer can easily evaluate it? This is Ease of Post-Decision Evaluation. Presumably after some experience in using the product he can evaluate it, but he cannot evaluate the product before he at least tries it.

The Amount of Time Pressure must be specified. Is the product purchased under conditions in which the consumer would be short of time? For example, time is at a premium for the young housewife with two or three children, and many of her purchases may be made under time pressure.

Finally, the State of Alternatives must be fixed. First, the content: Assume that the relevant range of alternatives to our buyers would be our product (A) and four brands of fresh milk (B, C, D, and E). By "relevant" we mean what our buyers would consider as relatively close substitutes. For each of these five alternatives we would specify Quality, Availability, Service, and Price. The number has already been identified. Last, we would ask how similar—how substitutable—are these five alternatives. They might be very similar (close together) or very dissimilar (far apart). Most of us would expect concentrated and fresh milk to be quite far apart, e.g., they are packaged differently.

Having specified the exogenous variables in terms of the concrete situation faced in the decision, the executive could proceed to make inferences about the nature of the buying behavior that would probably occur with this product in this market at this time, and more specifically, how his marketing effort could most profitably make a difference in this behavior.

EXECUTIVE'S VIEW OF BUYER BEHAVIOR

Up to this point attention has been directed to two questions: "What is buying behavior?" and "What are the causes that underlie it?" A third question has largely been implicit: "What is the relevance to the marketing executive of this attempt to explain buyer behavior?"

The relevance in general terms is that the marketing plan which the executive formulates is to the buyer just another set of stimuli playing upon him, although perhaps in a complicated way. Further, though the executive might be perfectly satisfied with his plan and not at all inclined to change it, he still must predict the effects of other stimuli—the uncontrollable variables—upon the buyer because for planning purposes he needs an estimate of the actual volume of sales. The purpose of this section is to make this relevance more specific in terms of both the design for, and the process of, collecting information for planning; in the previous sections attention was directed to the analysis for *specifying* the information to be collected.

The executive tends to think in terms of the buyer's response curves with respect to the various elements of his marketing plan. He may ask, for example, 'If I increase my advertising by 10 per cent, how much will my sales increase?" To trace through the relation contained in a particular response curve, however, it is necessary to know where that element of marketing action impinges upon the buyer. Advertising, for example, is a different kind of stimulus than is price in the sense that it may impinge upon the buyer's mental processes in a different way.

Where the Plan Impinges

How the stimuli provided by the elements of the marketing plan have their effect will be dealt with only in general terms; the analysis of the specific mechanisms by which the stimuli exert their influence can be discussed more appropriately when each element of the marketing plan is presented separately in Chapters 10 to 14.

Our limited knowledge prevents a firm statement, but marketing action appears to impinge in a number of ways. In the upper left-hand corner of Figure 20 it can be seen that advertising affects the triggering cue and so may trigger the decision to buy. Advertising also enters into the buyer's decision process through Information Seeking from Impersonal Sources. Finally, the effect of advertising may be transmitted to the buyer through interaction (Information Seeking from Personal Sources) with members of one of his social groups. The salesman, likewise, can be the stimulus that triggers the decision to buy; he, also, provides information, both directly and through the buyer's social groups.

The way the buyer looks at the State of Alternatives is affected by advertising and selling but the variable is influenced directly by the product and price decisions. Product decisions, as shown at bottom of Figure 20, change quality, number, and distinctiveness. Distinctiveness is a summary concept, however, that extends to all dimensions of the alternatives and is not confined to one dimension such as quality. Thus, any change in the State of Alternatives can change distinctiveness. If product decisions are defined to include service, service can, of course, be modified by the product decision.

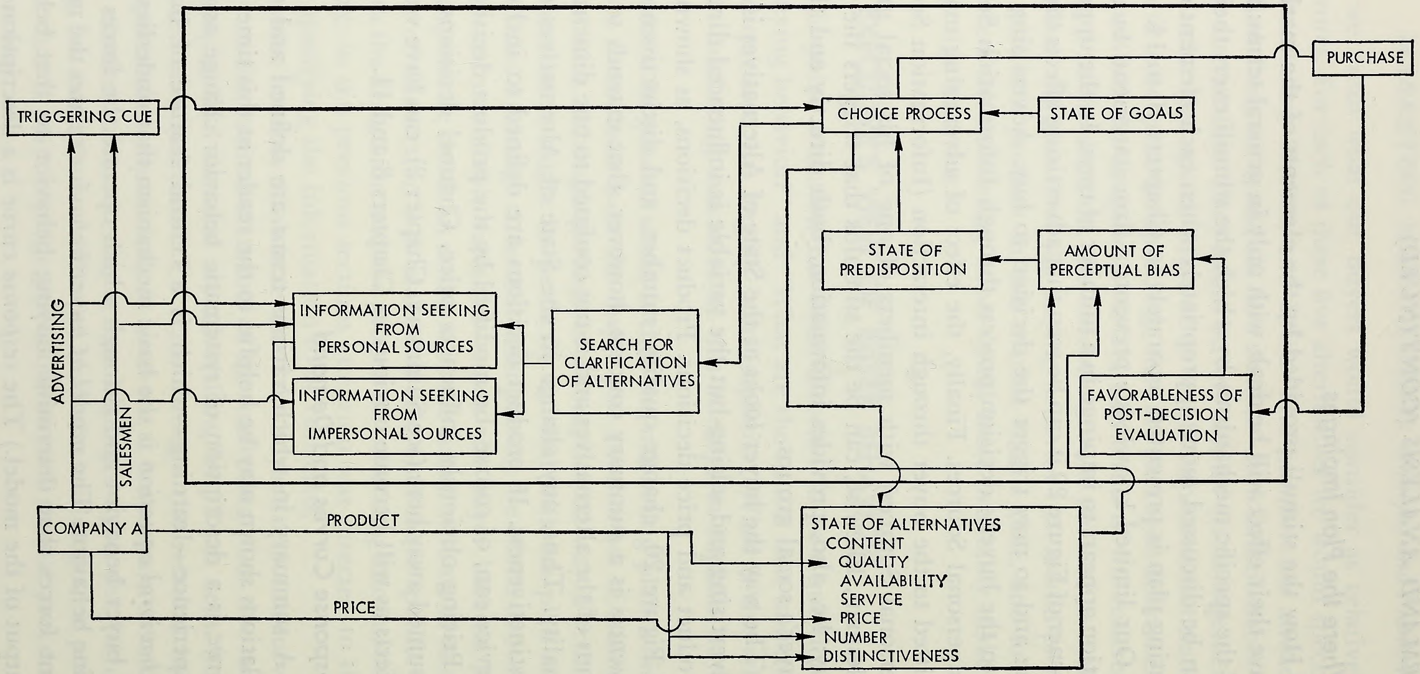
Pricing obviously influences price. Channel decisions, which are assumed away here (see Summary, Chapter 2), can have very complex effects as will become obvious in Chapters 8 and 11.

Response Curves and Demand

A summary in which various terms are defined and their interrelations shown may be helpful to the reader at this time. A *learning curve* is a description of systematic behavior change as a result of experience—learning—which is a central feature of buying. The *behavioral equation* is the basic mechanism that underlies the model of buyer behavior and through which operate the forces that determine behavior. The *model of buyer behavior* relates the more significant forces that determine buying behavior to that behavior (the output of the model.) The *response curve* is a description of the way

FIGURE 20

Points of Impact of Marketing Plan


TRIGGERING CUE
CHOICE PROCESS
STATE OF GOALS
PURCHASE
STATE OF PREDISPOSITION
AMOUNT OF PERCEPTUAL BIAS
ADVERTISING
SALESMEN
INFORMATION SEEKING FROM PERSONAL SOURCES
INFORMATION SEEKING FROM IMPERSONAL SOURCES
SEARCH FOR CLARIFICATION OF ALTERNATIVES
FAVORABLENESS OF POST-DECISION EVALUATION
COMPANY A
PRODUCT
PRICE
STATE OF ALTERNATIVES
CONTENT
QUALITY
AVAILABILITY
SERVICE
PRICE
NUMBER
DISTINCTIVENESS

in which a single buyer responds to changes in a particular stimulus at a point in time with the other stimuli held constant which can be contrasted with the learning curve that shows how behavior changes over time. A *company demand curve* or sales relation is a description of how all of a particular company's buyers respond to changes in a particular stimulus at a point in time with all other stimuli held constant. A *market demand curve* is a description of how all buyers—those of a particular company plus those of all of its competitors—will respond to a change in a stimulus at a point in time with all other stimuli held constant.

The different response curves of an *individual* buyer may be interdependent. The level of advertising to which he is being subjected, for example, may influence his response to price. Laboratory research with patterns of stimuli would lead us to expect interdependence frequently.

A buyer's response curve may not be stable. It may have one shape today but another shape next month. From the earlier discussion we would expect learning to be a source of instability. Economists often avoid this problem analytically by assuming that buyers have "stopped learning," and the empirical work has usually involved large numbers of buyers so that these differences among buyers are assumed to cancel out.

Finally, there is the problem of summing individual response curves. Only by necessity does the executive think of *individual* buyers; to make the problem manageable he thinks in terms of *aggregate* response curves: what will be the response of all his buyers to a 10 per cent change in salesmen's calls on the customers? To answer this question requires summing the response curves of all the customers. There is the question of the interpersonal independence of buyers' responses to a marketing influence. If the quantity of a brand purchased by one buyer depends upon the quantity purchased by another buyer, the two response curves can be added to yield an aggregate response curve only if each buyer behaves in a predictable way. If each buyer's behavior cannot be predicted without explicitly measuring the effect of other buyers, the response curves cannot be summed with any benefit.[13] Aggregating individual response curves is more of a problem than would at first appear.[14]

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[13] In mathematical terms, the issue is whether the influence of other buyers can be treated as parameters of the function, i.e., the shape of the graph representing the function, or whether it must be treated as a separate variable with the somewhat uncomfortable afterthought that the distinction between a parameter and a variable (in an

What is the empirical evidence on the conditions cited in the previous paragraph? Obviously, the variety of conditions in the market preclude a general statement. Clearly in some instances one buyer does influence the behavior of another: one lady may buy a dress *because* someone else had bought one like it. The discussion of interaction in connection with Extensive Problem Solving leaves no doubt but that interpersonal influence does exist. Whether these effects are significant enough to prevent summing individual response curves remains to be answered for each specific instance.

Second, are individual response curves similar enough so that adding them makes sense? There is direct evidence that they do differ, e.g., Katona and Mueller's study of the amount of deliberation.[15] In one case a triggering cue might precipitate a purchase of a durable within a week, but in another instance, the purchase may not occur for months. The indirect evidence is contained in the mass of psychological studies dealing with such factors as intelligence, etc. Doctors have been shown to differ with respect to degree of social isolation, and this made a difference in their willingness to innovate by accepting a new drug. Family purchasing patterns differ according to the family's position in the life cycle. Different social classes respond differently to the introduction of television. Some evidence suggests that some people are more likely to identify with their community, which influences where they tend to shop. Finally, intercultural differences in people are perhaps the greatest of all. Whether these differences are sufficient to limit summing response curves also must be answered for each specific case.

Because of its complexity, we can only raise the problem of aggregation, and not attempt to answer it. How important the problem is in a concrete marketing situation depends upon the level of aggregation that is demanded in the situation and the degree of precision expected in the measurements. The range of precision desired from decision to decision is truly enormous.

Now it is necessary to relate the concept of response curve to economic analysis since in Chapter 7 the concepts of demand and cost will be brought together in order to develop the idea of optimizing. An aggregate response curve is a demand curve or schedule—the

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argument—place of a function) is in many contexts quite arbitrary. After all, one can say hardly more than that a parameter is a variable in a narrow, specific context and a constant in a wide, general context.

[14] For a treatment of pertinent problems, see H. Theil, *Linear Aggregation of Economic Relations* (Amsterdam, The Netherlands: North Holland Publishing Co., 1954).

[15] Katona and Mueller, *op. cit.*

various amounts of a product that will be purchased during some given period of time within a range of values of the explanatory variable and with other factors of potential influence assumed constant. (This concept is termed a *ceteris paribus*—other things constant—demand curve. Another concept is the *mutatis mutandis* curve in which other influences are permitted to vary as well.) "Demand curve" can be contrasted with "amount demanded" which refers to the amounts that will be purchased for some given period of time with all the influences given. The concept of *elasticity*—the ratio between a percentage change in sales as the numerator and a percentage change in a determinant (e.g., price) as the denominator—was invented as a way of describing the shape of a demand curve. Also it is helpful to distinguish between *market* or *industry demand* and *company demand*. The former apply to the demand facing all companies selling the product and the latter, only to a single company. The application of the concept of elasticity to industry demand for a number of products is illustrated in Table 1. For instance, according to these estimates, a 1 per cent decrease in disposable income will lead to 0.53 per cent decrease in the purchases of food; a 1 per cent decrease in the price of food to a 0.49 per cent increase in food sales at the consumer level; a 1 per cent increase in the price of substitut-

TABLE 1
EFFECTS OF CERTAIN DEMAND DETERMINANTS

Commodity	Income Elasticity	Own Price Elasticity	Other Price Elasticity	Residual Trend
Food	+0.53	−0.49	+0.96	+0.003*
Tobacco	+0.32	−0.27	+0.59	+0.021
Footwear	+0.49	−0.77	+0.85*	...
Clothing	+0.67	−0.66	+1.16	...
Clocks, watches, and jewelry	+1.15	−0.74*	+2.76	...
House furniture and floor coverings	+1.62	−1.74	+2.29	−0.007*†
Electrical appliances	+1.95	−1.68	+0.95*	...
House furnishings and equipment	+1.27	−1.18	+1.33	−0.004*†
Cleaning and polishing preparations	−0.08†	−0.35	+1.67	+0.043
Household paper products	+0.92	−0.98	+0.16	+0.041
Drug preparations	+0.19*	−0.10*	+0.90	+0.036
Monuments and tombstones	+1.23	−1.18	+1.32	−0.029†
Passenger cars	+2.93	−3.58	+2.87	...
Gasoline and oil	+0.15	−0.43	+0.80	+0.043
Toys, games, and sport supplies	+0.84	−1.38	+1.08	+0.001*
Pianos and other musical instruments	+0.57*	−0.82*	+4.69	+0.047

* Standard error is large. Specifically, it is roughly one third in each case.
† This value is not significant at the 5 per cent level.

Source: Richard Stone, *The Role of Measurement in Economics* (Cambridge, England: Cambridge University Press, 1951), Table 4.

able products will cause the purchases of food to increase 0.96 per cent. These data are useful rough guides to management in evaluating the effects of three influences upon industry demand.

Finally, when speaking of any one of the great variety of influences that determine a company's demand, it is often convenient to refer to the specific demand schedule as a *sales relation,* for instance, the price-sales relation, the advertising-sales relation, etc.

Market Information

In order to have a rational basis for his beliefs about the nature of the response curves with which he is dealing, an executive needs a continual flow of information about his buyers: where they are located, how they are responding to his decisions, how they are responding to other stimuli, and what new stimuli are appearing.

Market information, like information generally, is difficult to describe in the abstract. In terms of the introduction to decision making in Chapter 2, where statistical decision theory was referred to, we can say that the purpose of using the analysis of buyer behavior is to "reduce the dispersion of our subjective probabilities about future sales volumes."

The analysis of buyer behavior can contribute to narrowing the dispersion both directly and indirectly. *Directly,* the analysis can help an executive utilize more effectively the *information that he already has.* In a pricing problem such as reducing price, for example, executives often fear that in the minds of the buyers there may be a price-quality association about this product. The model of buyer behavior suggests that, if the buyer can quickly and accurately evaluate the qualities of the product (he can discriminate), a price-quality association is less likely to occur. Thus we use our *existing* information about the purchase situation at hand to determine whether the buyer can evaluate quickly and accurately.

The analysis can contribute *indirectly* by pinpointing the questions that must be answered in *acquiring additional information,* that is, in doing market research. To continue the example above, the analysis would tell us what we would want to find out in a survey, e.g., whether the buyer can quickly and objectively evaluate the product. Finally, it can aid in *interpreting the findings* of market research.

Kinds of Information. Market information can be classified according to who collected the information, what aspect of the buyer is involved, and the use to which it will be put. The first method gives us *primary* versus *secondary* data. In the case of primary data, the user of the data, the executive, has collected them for his specific use; secondary data are collected by someone else, and usually, therefore, with a different purpose in mind. A market survey conducted by a company for the purpose of marketing planning is primary data; United States Population Census data, for instance, are secondary. Primary data are usually much more relevant than secondary data but are more expensive.

The second method of classifying gives us economic, demographic, psychological, and sociological data. Economic data are information about the buyer's purchases, expenditures, income, assets, and liabilities. Demographic data have to do with population—its location, density, age, sex, and the like. Psychological data are made up of attitudes, etc. Finally, sociological data deal with a buyer's relations with other people who influence him, such as his social class, etc. As you can see, these are merely different features of a single individual, or different ways of describing him. All aspects of the buyer are useful; the most useful depends upon the particular circumstances. Each of these kinds of information—economic, demographic, psychological, and sociological—has its particular concepts and ways of measuring them. This is obvious, for instance, in the case of psychology with its great variety of tests.

The third classification—the use that the information is to serve—yields control versus decision information as discussed in Chapter 1. Control information, such as market share data, tells the executive whether he is doing well or badly—whether he has a problem. Decision information is used in making the decision which the executive hopes will solve the problem.

Methods of Collecting Information. There are many methods of collecting the different kinds of information. Market research is the term usually applied to collecting market information; it can pay off handsomely for the company if carried out imaginatively: each problem must be approached anew in the attempt to balance the gains offered by the information against the cost of collecting it. The methods are not mutually exclusive; for example, a survey may be used to collect data during a market test operation, and survey data can be fitted to a mathematical model for analysis.

The executive's day-to-day *experience* is a major source of information: talking with other executives, reading salesmen's reports, scrutinizing trade papers, and the like.

There are *on-going* total sales measures which can be contrasted with measures of the effect of a particular marketing plan dimension. A number of commercial firms provide these data for a fee. In the consumer market, the consumer panel and the retail audit are perhaps the most common techniques. In the consumer panel method, a sample of families over the country regularly record and report their purchases, including such information as brand, size, price, etc. With the retail audit, a sample of retail stores are periodically checked and their sales are estimated. Trade associations often attempt to provide these data in the industrial field.

The *survey* is one of the most widely used methods of collecting information. Interviewers simply ask the buyer the information desired. This technique is like the on-going sources in that it does not intervene in the process, but attitudinal data ("Do you like this brand?" or "Do you *plan* to buy this brand?") as well as behavioral data ("Did you buy Brand X?") can be collected. Surveys raise statistical problems of sampling reliability and psychological problems of interviewer bias, buyer memory, and willingness of buyer to discuss the reasons for making certain purchases.

Market testing is characterized by intervention into the market, e.g., a new product is actually put on the market without first asking buyers how they would like it if it appeared on the market. It is a "tryout" since usually little if any control is used to know what would have happened had the product been tried out in some other way, e.g., if the package had been green rather than yellow. Market testing is most often used with new products where the information is particularly limited and the cost of a mistake is high.

Experimentation is like market testing in that the researcher deliberately intervenes in the process to get information, but it differs in that more than one alternative course of action is tested. Experimentation may, of course, be carried out either in the laboratory or in the field, but currently field experimentation is by far the most feasible for marketing practice. Laboratory experimentation has accounted significantly for the great developments in knowledge of the natural sciences, but as yet experimentation of any kind has been little exploited for marketing purposes, although there is evidence that under certain conditions it can yield more precise answers than other methods.

Two essential elements of an experiment are: (1) the use of a control group and (2) selection of the test and control units in a random fashion. A control group is essential to serve as a base against which to compare the results of the test group. The test and control groups must be randomly selected in order that probability theory can be used both in designing the study and in making a prediction about the desired parameter—e.g., the proportion of buyers that increase their purchasing as a result of a price cut—after the data have been collected.

Some of the possible limitations of field experimentation should be recognized, but experience is not yet sufficient to permit a dogmatic statement about the seriousness of these limitations. First, economic limitations can make it unwise to randomize; for example, it is expensive to experiment in a number of markets, and yet if only two markets are used, randomization might result in the most atypical areas being selected. Second, experiments must be limited to measuring short-term responses because if the experiment runs long enough to detect the slower changes, so many other things happen that it is no longer possible to isolate the effects of the experiment. The executive, however, is often interested in estimating long-term responses. Third, measuring actual sales accurately can be costly. Special record-keeping arrangements often must be established for the period of the experiment because changing inventory levels in the channel of distribution prevent the effects on sales being reflected at the manufacturing level. However, commercial market research agencies are making these data available for many consumer products at a cost that is probably reasonable for an important decision. Fourth, the variability of sales among units of the test is often large by comparison with hoped-for responses to marketing actions so that the effect of the marketing influence cannot be identified. Fifth, the test units may tend to contaminate the control units, e.g., national magazine advertising media can contaminate the experimental area when a local media is changed as a part of the test process.

Sixth, it is often difficult, except for very short periods, to execute properly experimental designs when they require people in a marketing organization to change their behavior. Store managers may object, for instance. Seventh, it is often difficult to make marketing experiments sufficiently realistic to be useful. For instance, in advertising tests it may be difficult to adapt national media to experiments in local areas. Eighth, experiments raise "security" problems of a more serious nature than those associated with a survey, e.g., a competitor may see the results and utilize them. Finally, the mortality of experimental units is relatively high in marketing experiments; for example, consumers may move out of the community.

Mathematical models represent an area of growing interest. One particular type of mathematical model, which is from the group of models characterized by probabilistic processes, illustrates one way in which the process of buyers choosing among brands can be measured. Assume that Pr_{11}, for example, is the probability that the buyer having bought Brand 1 (the first subscript) on the last purchase will buy Brand 1 (the second subscript) on the next purchase, etc.:

$$\begin{array}{ll} Pr_{11} = 0.8 & Pr_{21} = 0.3 \\ Pr_{12} = 0.2 & Pr_{22} = 0.7 \end{array}$$

These probabilities are termed "transition probabilities," and a static view is taken here: it is assumed they do not change from period to period. Also, it is assumed that at Period 0 each brand has a market share of 50 per cent.

The process by which equilibrium in the market share is reached can now be mathematically computed. In Period 1, Brand 1 increases its share to 0.55 since its share is the sum of the purchases of those buying it the last time and buying it again this time, and those not buying it last time but buying it this time.

$$\text{Pd. 1, Brand 1: } (0.5)\,(0.8) + (0.5)\,(0.3) = 0.55 \text{ (market share)}$$

Correspondingly, Brand 2 lost share to 0.45 as the result of Pd. 1's experience.

$$\text{Pd. 1, Brand 2: } (0.5)\,(0.7) + (0.5)\,(0.2) = 0.45 \text{ (market share)}$$

During Pd. 2, Brand 1's share rises still further to 0.575.

$$\text{Pd. 2, Brand 1: } (0.55)\,(0.8) + (0.45)\,(0.3) = 0.575 \text{ (market share)}$$

This adjustment will continue until equilibrium is reached, which with the transition probabilities assumed here would be less than 60 per cent for Brand 1 and slightly more than 40 per cent for Brand 2.[16] The reader should compute the share for each of the remaining periods to proximate equilibrium.

In light of the earlier discussion of aggregation, it will be instructive for the reader to ask himself what must be true of the nature of the response probabilities of the individual buyers that make up the market to result in the pattern of brand shifting shown in this example. "Response probabilities" is, of course, a shorthand way of describing "the shape of a buyer's learning curve and his position on it."

Two kinds of mathematical models must be distinguished. The first is the *positive* or *descriptive* model which is a mathematical representation of reality. An example is the brand-switching model described above. The second is the *normative* or *prescriptive* model which in a sense tells the executive how he *ought* to make his decisions. This has largely been the province of management science, managerial economics, and operations research. The essential and intimate relation between the two kinds of models is that the positive model will help provide the data required by the normative model which in some sense enables the executive to make optimal decisions. The buyer behavior model is a nonmathematical positive or descriptive model, but the purpose is obviously the same—to provide data for normative models as will be illustrated in connection with the normative model for allocating sales effort to territories discussed in Chapter 14.

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[16] This example was taken from Frank M. Bass, *et al.* (eds.), *Mathematical Models and Methods in Marketing* (Homewood, Ill.: Richard D. Irwin, Inc., 1961), pp. 106–7.

SUMMARY

Market information is much more than mere facts; the purpose of market information is to serve as decision premises for the executive. For this to happen, facts must be in terms of the executive's frame of reference—his theory of how the market operates. And though he may decry the use of theory, every experienced executive does have a theory of the buyer—he must, if he is to make sense of the welter of information that he encounters. A way to verify that he does have a theory is to ask him what information he needs, and it will be found that he wants certain information and not other information because only the former is relevant; *his theory specifies it.* For someone intending to become a marketing executive the ideas contained in this discussion of a buyer behavior model can serve as a foundation upon which to build from his experience a theory of his particular market. The ideas will enable him to organize in a meaningful way the facts that he is confronted with, to guide researchers in designing market research studies, and to interpret the findings of these studies. These contributions will be illustrated in Chapters 10 to 14.

Chapter 15

DEMAND ANALYSIS: FORECASTING

The previous two chapters have been concerned with setting forth essential demand concepts and with the marketing executive's problem of adjusting to current demand, with an occasional reference to the future time dimension. Company planning, however, requires the executive to concentrate upon the demand of the future.

The necessity for accurate forecasting differs widely among companies. Under some conditions a company can have wide margins of error in its sales forecasts without damaging consequences. These conditions, for example, are readily available sources of supply and a short production period. The readily available sources of supply will enable the company to provide the supplies required in meeting the additional production with no hardship if actual sales exceed the forecast. With a short production period, changes in the production schedule can quickly correct for a forecast that is either too high or too low.

Under the opposite conditions, correct sales forecasting is essential to a favorable profit picture. In all cases, the benefits offered by a given degree of accuracy in forecasting should be measured against the cost that must be incurred to attain that level of accuracy. The formal models of production planning and inventory control make it possible to assess more accurately the period for which it is profitable to forecast.[1]

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[1] Charles E. Holt, "Forecasting Requirements from the Business Standpoint," in National Bureau of Economic Research, *The Quality and Economic Significance of Anticipations Data* (Princeton, N. J.: Princeton University Press, 1960), pp. 9–27.

The increasing company need for sales forecasting is suggested by the growing emphasis upon company planning. Developments in the application of economic, statistical, and mathematical analysis make possible a greater degree of forward planning. The professionally trained executive is somewhat familiar with these planning tools and their usefulness. In addition, society places certain demands upon the executive which involve more planning. Top management may decide, insofar as possible, to stabilize capital outlay, since the failure to do so is one of the key sources of instability in the whole economy. There are growing public pressures for stability in production, and these pressures are crystallized in the form of the demand for the guaranteed annual wage. The increased use of automatic machinery (automation) requires more accurate forecasting. Another force encouraging explicit forecasts is the use of computerized production planning and inventory control systems.

The effects of bad forecasting on both profit and employment are illustrated in the midwestern plant of a large rubber company. This new plant was supplying a number of industries, including the automobile industry. In 1955, however, because of the relatively more profitable sales to the automobile manufacturers, it was decided to supply only the automobile industry and to discontinue relations with other industries. A 1956 sales forecast estimated that sales would double those of 1955 even though sales were confined to the automobile industry. The forecast proved to be highly inaccurate. A 20 per cent cutback in auto production in January and February, 1956, caused a 50 per cent reduction in the plant's production because the company wished to reduce its inventories. Not only did automobile sales decline but the proportion of cars equipped with the product of this particular plant was lower than anticipated. In May of 1956 it was expected that by the following July, production would drop to 25 per cent of capacity. Hourly rated employment dropped from a high of 950 to an estimated low of 325 in July. Relations with the plant's former customers in other industries could not be re-established on short notice.

It is necessary to distinguish between forecasting short-term demand and long-term demand. A short-term forecast—a prediction for a period of a year or less—is appropriate for short-term planning; a long-term forecast—a prediction for more than ~~a year~~—is used for long-term planning. Another feature of the sales forecasting period is the frequency of revision. If a company prepares a 12-month forecast on January 1, how often during the ensuing 12 months is this forecast revised in the light of the inevitable unanticipated circumstances? Table 2 suggests the frequency of the various forecast periods and forecast revisions; it presents data from a survey of the economic forecasting practices of 20 corporations. A major purpose for preparing economic forecasts is to provide a foundation for sales forecasting, and thus we can infer from their economic forecasts something about their sales forecasts. For short-term periods such as less than three months, sales forecasts are probably much more common than economic forecasts.

Table 2 suggests that short-term forecasting is done with much greater frequency than long-term forecasting. All of the 20 companies prepared a 12-month forecast, whereas only eight companies prepared a five-year forecast. A number of the companies prepared shorter forecasts—11 prepared a three-month forecast, and four prepared a six-month forecast. Although long-term forecasting is less common, it can contribute to effective short-term forecasting. The long-term forecast provides perspective against which to assess the significance of short-term movements in sales. Otherwise, undue or inadequate significance may be attached to particular short-term changes as indicative of the long-term trend of sales. For example, in periods when a decline in business conditions is feared, executives are sometimes prone to conclude that a small decline in their sales indicates the presence of a recession; however, actually the decline may only be of a seasonal nature. By determining the normal seasonal pattern of his sales and setting this pattern against the absolute level of sales suggested by the long-term projection, the executive can determine more accurately whether certain movements portend a cyclical downturn.

TABLE 2

ECONOMIC FORECASTS OF TWENTY CORPORATIONS
Frequency of Revision and Length of Forecasts

FREQUENCY OF REVISION	LENGTH OF FORECAST				
	3 Months	6 Months	1 Year	2 Years	5 Years
Monthly	4	1			
Quarterly	7	2	12	1	
Semiannually		1	3		1
Annually			5	1	7
Total	11	4	20	2	8

Source: J. A. Howard, "A Note on Corporate Forecasting Practices," *Journal of Business,* XXVII (1954), 102. (Copyright, 1954, The University of Chicago.)

SHORT-TERM FORECASTING

Short-term forecasting is discussed in terms of the uses of forecasts, forecasting procedure, and forecasting the sales of new products.

Uses of Short-Term Forecasts

Short-term forecasts are essential for developing a marketing plan and a company plan. Although the marketing manager is primarily interested in market planning, he also should be familiar with company planning and achieving control and teamwork, since typically he is responsible for constructing the forecasts.

Marketing Plan. A forecast of company sales should take into consideration the company's marketing plan for the forecast period, although in practice the marketing plan is often ignored. Whether or not the company intends to increase its advertising, for example,would make a difference in expected sales.

It is equally important, however, that the level of sales expected may influence the nature of the marketing plan. Technically, the level of sales may affect the shape and position of the response curves involving the controllable determinants of sales. Hence, in order to formulate the most effective plan, expected sales should be considered because the plan is determined in part by these demand relations involving the controllable determinants. Marketing executives perhaps fail to recognize and take advantage of this complex relation between forecasting and the marketing plan, which is a relatively unexplored area.

Why and how do these demand relations change? We probably know more about the effects of changes in the level of economic activity upon demand relations because economists have studied the business cycle for a long time. It has been argued that during a period of declining consumer incomes the product-sales relation for some consumer products are different than during a period of expanding consumer incomes; for example, consumers are less receptive to new products in recession.[2] This is illustrated in Figure 21 where expenditure *OY* will yield *OB* in sales during prosperity but will yield only *OA* in sales during a recession. To be meaningful, in this case "product-development expenditures" must be interpreted as market-development costs only and not as including laboratory costs. Also, it is argued that in periods of depression the industry price-sales relation for some products becomes less elastic; in other words, price cuts become less effective as a means of increasing industry sales.[3] It has been hypothesized that advertising elasticity changes more over the business cycle in products of high-income elasticity than in products of low-income elasticity. This would suggest that for home appliances, for example, the advertising should be varied over the business cycle. Apparently there is no reasearch to support this hypothesis.

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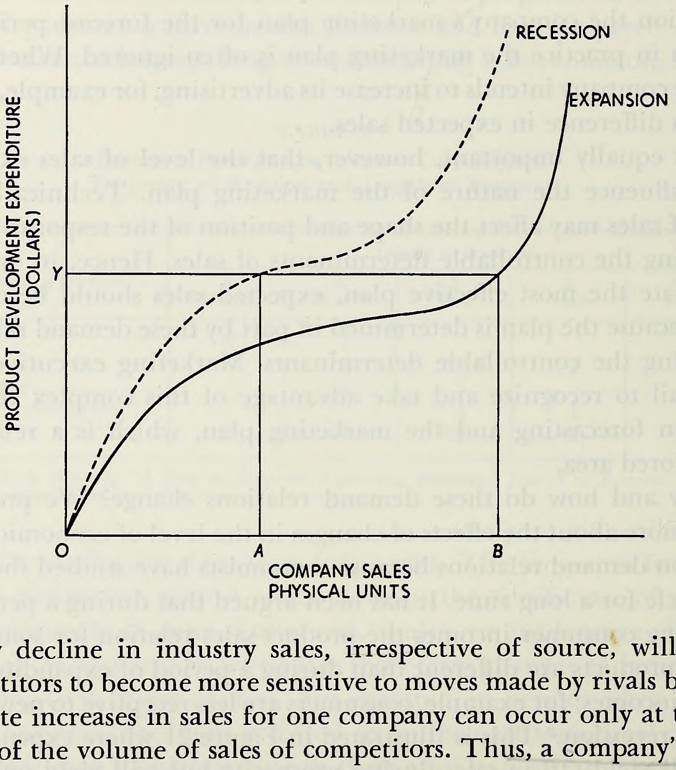
[2] Eva Mueller, "The Desire for Innovations in Household Goods," in Survey Research Center, University of Michigan, *Consumer Behavior* (New York: New York University Press, 1957), Vol. III, Table 14.

FIGURE 21

THE RESULTS OF PRODUCT-DEVELOPMENT EXPENDITURE ARE INFLUENCED BY THE BUSINESS CYCLE



Any decline in industry sales, irrespective of source, will cause competitors to become more sensitive to moves made by rivals because absolute increases in sales for one company can occur only at the expense of the volume of sales of competitors. Thus, a company's price plans should be based upon an industry sales forecast.

Company Plan. Company planning begins with an estimate of future sales. In the tractor division of the agricultural implement industry, fairly exact production schedules are drawn up six months prior to the date the tractor is expected to be completed. The first three months constitute the purchasing cycle, mainly ordering steel, and the second three months constitute the production cycle. An additional period of perhaps one month is required to move the tractor from the factory to the farmer. Thus, seven months of planning ahead is essential in the production of tractors.

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[3] Richard B. Heflebower, "The Effect of Dynamic Forces on the Elasticity of Revenue Curves," *Quarterly Journal of Economics,* LV (1940–41), 652–66.

Sales forecasting is required to plan inventories. Inventories of raw materials, goods in process, and finished products can serve as a "shock absorber" and compensate for the mistakes in forecasting, but inventories are expensive to maintain, particularly when the finished product has a high obsolescence rate. Incorrect forecasting places management in the position of having excessive inventories or of being out of stock. The latter condition can have a decidedly adverse effect upon current sales and, perhaps even more, upon future sales. Inventory planning is particularly essential if a company follows a conscious policy of stabilizing production so that during slack seasons it will be producing for inventory.

If the prices of the raw materials happen to be unstable, as is usually true of basic commodities, a correct sales forecast will aid in purchasing these raw materials when prices are low. Production executives usually disclaim any intent to "speculate" by permitting prices to influence their purchase decisions, but a certain amount of speculation is inevitable and might as well be used as another means of yielding profit. Organized futures markets exist for some raw materials, and companies using these materials can avoid speculation by hedging.

Effective cash budgeting requires a sales forecast. A company cash budget is an estimate of various cash needs of the company at each point in time throughout the planning period so that arrangements can be made for adequate available cash to meet commitments.

Forecasting Procedure

In establishing a forecasting procedure, an important distinction is made between forecasts of established products and forecasts of new products. Most of the following discussion will pertain to established products. The forecasting problem also differs between consumer and industrial products, but with certain modifications, most methods will apply to both products.

A company forecasting procedure is usually made up of a number of features. First, most companies produce a number of products, and a decision must be made whether the different products represent quite different forecasting problems or whether they are similar enough to be treated as a single product for forecasting purposes. *Determinants* of the short-term future sales of the specific product are identified. The relevant determinants are usually those of industry or market demand rather than of company demand, because the most common approach is first to forecast industry sales, then to estimate the company's share. These determinants are numerous, and it is necessary to choose from among them. Thus, criteria of selection must be formulated. The next feature of a forecasting procedure is the *specific method* by which the forecast is derived. Also, a forecast to be most useful must include estimates of *geographic variations* in demand which should be provided by the company's forecasting procedure. Finally, an essential feature of the forecasting procedure is the means by which the *accuracy* of each forecast is evaluated.

Determinants of Future Demand. An analytic approach to the forecasting problem begins with an investigation of the causes of changes in demand and then proceeds to forecast these determinants or sources of change unless there is a lagged relationship and the *current value* of the determinant will suffice. One of the widely applicable determinants, for example, is the Financial Status variable of the buyer behavior model. As noted in the discussion of the model in Chapter 4, financial status probably has somewhat different dimensions for consumer than for industrial buyer behavior. Disposable income—personal income after taxes—is a common measure of financial status for consumer buyers. The magnitude of the effect of changes in disposable income—the elasticity—and how it varies among a number of products were shown in Table 1 in Chapter 4. The reader will find a review of Table 1 helpful in clarifying some of the discussion which follows. Predicting future values of financial status is the task of economic forecasting, not sales forecasting.

An empirical approach to sales forecasting—the other extreme from analytic—consists in using variables that vary with your sales in a lagged relationship, even though there is no logical reason to suspect a relation between them. For example, changes in sales may coincide closely with changes in the consumption of electric power, although there may be a three-month lag. From current data on power consumption the level of sales can be predicted three months in advance, even though there may be no reason why this relationship should exist. We tend to have more confidence in a relationship that is reasonable.

Sales are usually the result of a number of determinants, and a sales forecaster is faced with the problem of working only with the most useful determinants. In selecting them the following criteria can be used: variability, importance (extent of influence), measurability, and independence.

Unless a determinant is expected to vary during the period of a forecast, it can be ignored. The size of the population is an important long-term determinant of the sales of many consumer products, but this determinant is not important for a 12-month forecast. Population is not likely to change significantly during a year. Consumer income, on the other hand, may vary considerably during the year.

It is more efficient to work with only those determinants that exert a major influence upon sales. Consumer income, for example, may be important, but the degree of importance differs significantly among products, as the reader will recall from Table 1 in the previous chapter. In general it may be said that among consumer products, durable goods have the greatest income elasticity, and services the least income elasticity.

Measurability is of great significance in selecting determinants if a quantitative method of forecasting is to be employed. There is the question, also, of the precise data that best represent a given determinant. *Disposable personal income* is the most commonly used measure of consumer income. For some products, this measure has the limitation of not reflecting changes in the distribution of income among consumers; in addition, income changes may not be spread evenly over the company's market area. Discretionary income, the income a consumer has left after meeting his basic needs, is another widely used concept.

Finally, it is usually assumed in economic analysis that the demand determinants are independent; in practice, however, the determinants may be significantly intercorrelated. As a consequence a relationship between sales and one determinant that has existed in the past may have been spurious and merely reflecting the influence of a related determinant.[4] In much of the post–World War II period, while automobile prices rose substantially, sales continued to increase. To asasume that the increased volume was caused by raising the prices would be a spurious correlation. Because of the interdependent nature of economic activity, it may be difficult to find completely independent determinants. Determinants with a minimum of interdependence should be used.

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[4] In using the term "spurious," a distinction should be made between the relation and the interpretation placed on that relation. For example, the relation may be real, but to say that it is causal may be placing a spurious interpretation on it. See W. Allen Wallis and Harry V. Roberts, *Statistics: A New Approach* (Glencoe, Ill.: The Free Press, 1956), pp. 529–30.

Methods of Forecasting. Many methods of short-term sales forecasting are used in practice. By discussing four of the methods here—regression analysis, surveys of buyers' intentions, current purchases by ultimate users, and statistical forecasting—it will be possible to touch upon most of the problems encountered in short-term forecasting.

Regression analysis, the most widely used method, has a number of variants. In its simplest form, regression analysis consists of finding the historical relationships between sales (the dependent variable) and one demand determinant (the independent variable) through statistical regression; the expected value of the independent variable is injected into the equation and the value of the dependent variable —sales—derived. If the problem is to forecast the industry sales of automobiles, we might find that from a 20-year experience the equation, $y = a + bx$, where $y =$ sales, and $x =$ disposable personal income, is $y = -7{,}770{,}000 + 0.000065x$. Thus, if disposable personal income is expected to be $235 billion next year, approximately 7.5 million automobiles will be sold. This is illustrated in Figure 22.

Although this example contains the essential features of the regression analysis method, an examination of the steps involved in using the method will illustrate other variants. These pertain to the independent variables (the demand determinants), kind of function used, method of fitting the function, method of deriving the forecast, period of observation, and the units of measurement of the variables. Space permits only a brief review here.[5]

The choice of independent variables is of critical importance and the criteria for selecting demand determinants can be used. Since we are dealing with future sales, the "forecastability" of the independent variable becomes an additional criterion. Ideally, a lagged relationship between sales and the independent variable is desired so that the *current* value of the independent variable can be used to estimate the *future* value of sales. If such a lagged relationship does not exist then either the independent variable must be predicted or another forecasting approach must be used. The number of independent variables to be employed raises real questions in practice.

The kind of function used in the regression analysis method may

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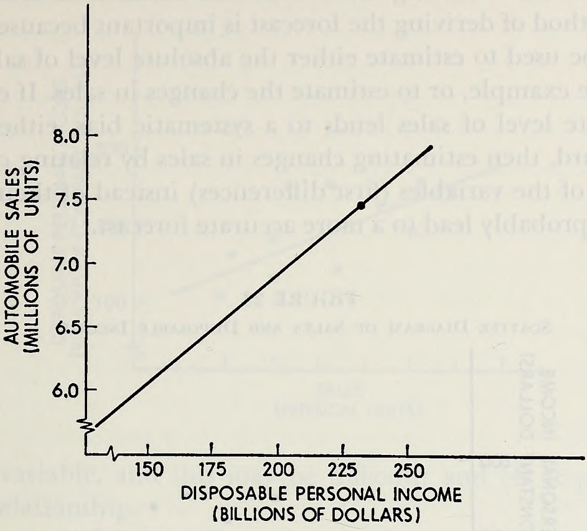
[5] The regression method is thoroughly explained in Mordecai Ezekiel and Karl A. Fox, *Methods of Correlation and Regression Analysis* (3rd ed.; New York: John Wiley & Sons, Inc., 1959); and Robert Ferber, "Sales Forecasting by Correlation Techniques," *Journal of Marketing,* XVIII (1953–54), 219–32.

FIGURE 22

AUTOMOBILE SALES AND DISPOSABLE INCOME*



* This example is illustrative.

be linear or curvilinear. A linear, or straight-line, relationship was used in the example above, but logic may dictate a curvilinear relationship of some form. There is an endless variety of functions from which to choose.

The function may be fitted mathematically or graphically. Although the mathematical method is more pleasing from the viewpoint of rigor, the graphic method may be a good approximation, especially if there is little scatter. Graphic regression is a very simple but useful tool that has many applications in marketing. Since we will refer to it in later chapters, a brief explanation is offered.[6] Let us simplify by assuming that the dominant demand determinant for the product of X Company is disposable personal income. The first step is to construct a simple "scattergram" of product sales and disposable personal income for the past ten years, as illustrated in Figure 23. Each of the ten dots represents a given year. The next step is to draw a freehand line between the dots so as to minimize the total distance between the dots and the line, as shown in Figure 24. It is called the line of "best fit." This line is the estimated demand relation. A curved line can be drawn if it appears to provide a better "fit" than a straight line. Finally, the graphic method can be applied to a forecasting problem involving more than one demand determinant.

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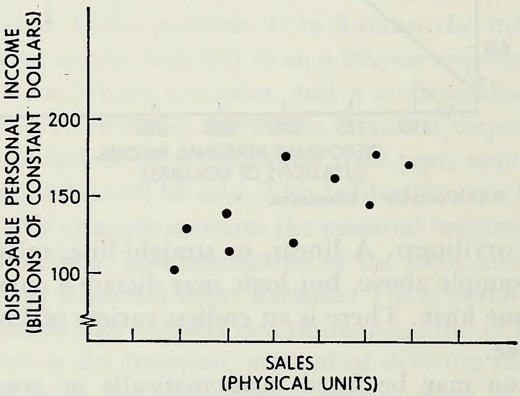
[6] For a detailed statement of the method, see Ezekiel and Fox, *op. cit.*, chap. xvi; and Robert Ferber, *Statistical Techniques in Market Research* (New York: McGraw-Hill Book Co., Inc., 1949), pp. 370–79.

The method of deriving the forecast is important because the function may be used to estimate either the absolute level of sales, as was done in the example, or to estimate the changes in sales. If estimating the absolute level of sales lends to a systematic bias, either upward or downward, then estimating changes in sales by relating *changes* in the values of the variables (first differences) instead of their absolute levels will probably lead to a more accurate forecast.

FIGURE 23

Scatter Diagram of Sales and Disposable Income



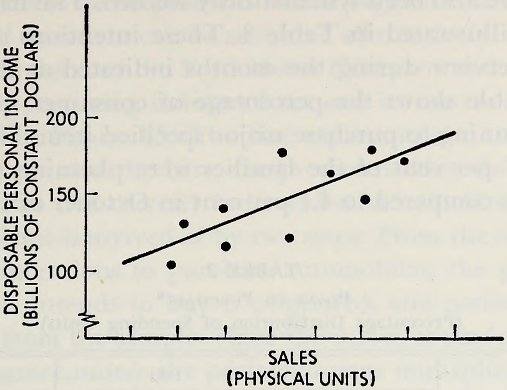
Another point to be considered is the appropriate period of observation for determining the historical relationship between sales and the independent variable. The longer the period, other things being equal, the more reliable will be the estimates of the relationship.

One common question is whether to use physical units or dollar units as the unit of measurement of the variables. In general, physical units are preferred whenever possible. When income is a variable, this is not possible, and income should usually be deflated by a price index in order to yield income in constant dollars.

There are four major limitations of the regression method of forecasting: (1) the method assumes that a relationship which existed in the past will hold true in the future; (2) causality may not flow unilaterally from the independent to the dependent variable—the admonition applies that "correlation never proves causation"; (3) if a lagged relationship does not exist, it is necessary to predict the inde-

FIGURE 24

FREEHAND TREND LINE FITTED TO SCATTER DIAGRAM



pendent variable, and this may be difficult; and (4) it provides an average relationship.

The survey of buyers' intentions and the current purchases of ultimate buyers methods of forecasting differ fundamentally from the regression method; both appear to be much more simple and direct. This simplicity can easily be exaggerated, however, because the forecast data provided by either of these two methods must be interpreted. To be most useful, the interpretation usually requires a knowledge of economic relationships.

The *survey of buyers' intentions* to purchase has long been used on an informal basis, particularly by companies selling to industrial buyers. Two factors favor the use of this method: (1) typically, industrial buyers can predict their purchases more accurately than consumer buyers; and (2) there are fewer industrial buyers.

Since World War II a particular type of company intention—the capital outlay plan—has been systematically studied in the attempt to better understand the business cycle.[7] A capital outlay plan *implies* the purchase of those items required in the capital outlay; for example, if the capital outlay is the construction of a building, the components of the building presumably must be purchased. Also, knowledge accumulated about this well-studied type of plan may be helpful in estimating the reliability of company long-term sales plans; these sales plans are relevant because some industrial companies forecast their sales on the basis of the long-term sales plans of their buyers.

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[7] For example, see National Bureau of Economic Research, *op. cit.*

Consumer intentions to purchase consumer durables discussed in Chapter 3 have also been systematically studied. The nature of intentions data is illustrated in Table 3. These intentions data were collected by interview during the months indicated at the top of the table. The table shows the percentage of consumer spending units (families) planning to purchase major specified items. Thus in January, 1962, 3.7 per cent of the families were planning to buy a new automobile as compared to 4.1 per cent in October of the same year.

TABLE 3

PLANS TO PURCHASE*

(Percentage Distribution of Spending Units)

BUYING PLAN	1960			1961				1962			
	Apr.	July	Oct.	Jan.	Apr.	July	Oct.	Jan.	Apr.	July	Oct.
New automobiles.....	3.3	3.1	3.7	3.5	3.1	3.4	3.7	3.7	3.4	3.4	4.1
Used automobiles.....	3.9	3.8	4.0	4.5	4.1	4.2	4.4	4.3	5.6	4.5	4.4
Houses (new or existing)...........	5.3	5.4	5.0	4.8	5.1	5.0	5.1	4.8	5.2	5.2	4.9
†Household durable goods.............	21.9	20.1	21.0	20.5	20.2	18.4	19.6	18.8	20.1	19.3	20.7
‡Major household durable goods......	13.9	14.0	13.8	13.7	13.0	12.8	13.1	12.2	13.0	13.2	13.5

* Percentage of all families that reported they would either definitely, probably, or may buy within 6 months except for houses which is within 12 months.

† Sum of plans to buy washing machines, refrigerators, television sets, air conditioners, clothes dryers, radio and phonographic equipment, and dishwashers.

‡ Sum of plans to buy washing machines, refrigerators, and television sets only.

Source: *Federal Reserve Bulletin,* November, 1962, p. 1424.

Although the data obtained in these surveys have been useful in the preparation of economic forecasts, for our purposes the surveys are mainly significant for their contributions to our general understanding of consumer planning. Two important questions arise in the use of surveys of intentions: (1) can buyers make a reasonably accurate prediction as to their purchases, and if so, (2) can they meaningfully transmit this forecast to an interviewer? The research to date suggests that intentions to purchase are related to purchasing behavior but that this relationship is subject to many influences. The intentions of a group of individuals are a better predictor of buying behavior than an individual's intentions, since within a group many of the deviations between planned and actual behavior offset one another.[8] In summary, as mentioned in Chapter 3, the reliability of intentions data for forecasting purposes remains an open question. The respondent's communication of his prediction to an interviewer in the form shown in Table 3 seems to be no problem, which suggests that the second of the two critical questions can be answered affirmatively.

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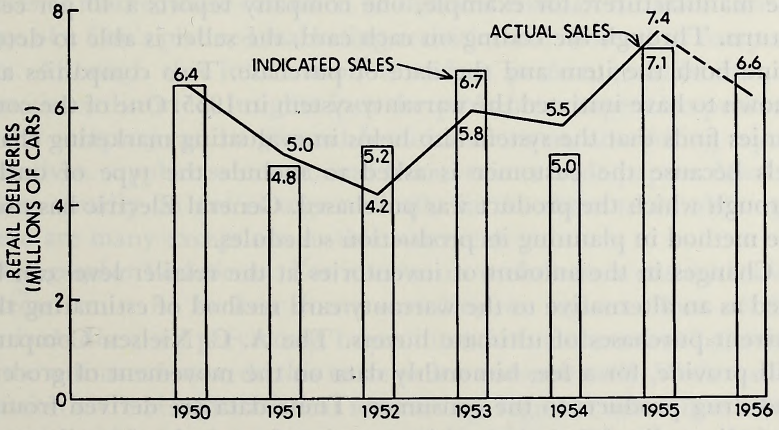
[8] Irving Schweiger, "Forecasting Short-Term Consumer Demand from Consumer Anticipations," *Journal of Business,* XXIX (1956), 90–100.

The Ford Division of the Ford Motor Company makes use of consumer plans in preparing industry forecasts; its success in predicting sales is shown in Figure 25. The line represents the actual sales for the calendar year, and the bars, the predicted sales; for example, in 1950 the forecast was correct: indicated sales coincided with actual sales. The forecast is arrived at by two steps. From the sample survey of consumer intentions to purchase automobiles, the proportion of consumers that intends to buy is computed, and national estimates are projected from the sample. Since the survey is made according to families (consumer units), the projections are multiplied by 1.38 because this is the average purchase rate of families. These results are then weighted by expectations of future income as shown at the bottom of Figure 25; according to a Ford Division representative, weighting by this factor has increased forecast accuracy.

Another version of the consumer intentions survey is used by de-

FIGURE 25

Relation between Predicted and Actual Auto Sales



Source: Marketing Research Economic Studies, Ford Motor Company, March 26, 1956. Number of *spending units planning to buy* adjusted for average purchase rate and *expected change in future income.* For example:

	Plans (Thousands)		*Average Purchase Rate*		*Future Income Index*		*Estimated Auto Sales*
1955	4,453	×	1.38	×	115	=	7.1 million
1956	4,477	×	1.38	×	108	=	6.6 million

partment stores where the problem is to predict the sales of particular styles of clothing. For example, a number of customers are quizzed in the store as to the characteristics of the dress that they will buy next season. The method is said to be effective.[9]

The third method of forecasting, data on *current purchases of ultimate users,* is appropriate where changes in inventories in the marketing channel lead to fluctuations in the sales at higher levels in the channel. There is often a lag of three or four months before changes in the level of consumer sales are felt at the manufacturing level. A manufacturer of electric razors may sell to a wholesaler who will in turn sell to retailers. The basic problem is to predict the wholesaler's purchases, but his purchases will in turn depend upon the retailer's purchases, which will depend in turn upon the consumer's purchases. Thus an effective method of forecasting the sales of electric razors is to rely on the current purchases of the ultimate consumers as a measure of the future purchasing rate of the wholesaler and retailer.

The warranty card is one method of obtaining data on current purchases of consumers. The manufacturer encloses with each unit of the product a warranty card which the consumer completes by filling in his name, the date, and place of purchase. Ostensibly, the completion of this card is necessary for the consumer to insure the manufacturer's guarantee of the product for some stated period such as a year. A surprisingly high proportion of these warranty cards are returned to the manufacturer; for example, one company reports a 40 per cent return. Through the coding on each card, the seller is able to determine both the item and the date of purchase. Two companies are known to have initiated the warranty system in 1955. One of the companies finds that the system also helps in evaluating marketing channels because the customer is asked to include the type of outlet through which the product was purchased. General Electric has used the method in planning its production schedules.

Changes in the amount of inventories at the retailer level can be used as an alternative to the warranty card method of estimating the current purchases of ultimate buyers. The A. C. Nielsen Company will provide, for a fee, bimonthly data on the movement of grocery and drug products to the consumer. These data are derived from a periodic audit of the sales and inventories of a sample of retail stores. Market Research Corporation of America provides comparable data on a weekly basis through the use of a consumer panel in which a sample of consumers maintains records of their purchases. Audits & Surveys Company provides information on the flow of some consumer durables. Their method is similar to Nielsen's in that retail stores provide the information, but Audits & Surveys maintain that they obtain a more thorough coverage of different kinds of retail stores.[10]

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[9] Glenn Fowler, "Stores Learn Wants of Customers in New (Old) Way: Just Ask Them," *New York Times,* October 30, 1955, p. 1F.

A fourth method of forecasting—*statistical forecasting*—has received considerable attention in the management science and operations research literature in the past decade. Statistical forecasting assumes a given structure—a given set of causal variables—of demand, and it treats forecasting as a problem of analyzing random variation within this structure. All factors that influence future demand are placed in one of two classes: those which have been operative in the fairly recent past and the new factors. Statistical forecasting deals only with the former, that is, a given structure. The task of estimating the effect of the *new* factors—the change in the structure of demand—is labeled "prediction" to distinguish it from "forecasting." ". . . [the] objective [of statistical forecasting] is to make the forecasting [so] routine . . . that management will have time for predictions, which will modify the basic forecast."[11]

Share of Industry Demand. The discussion so far has been primarily in terms of forecasting industry sales, but the market forecast is only a beginning for the forecast of company demand. Satisfactory estimates of market share can often be deduced from an intimate knowledge of a firm's planned marketing activities and those of its competitors. Although this information is seldom perfect, considerable, if sometimes distorted, insights into the probable competitive position of the company can be gleaned from its salesmen, advertising representatives, supplier salesmen, and from various trade papers. Market shares usually do not change radically in the short term, although there are many exceptions to this statement.

Geographic Variations. For maximum usefulness a national sales forecast must be broken down according to regions. Two of the methods discussed previously, buyer intentions and current behavior of the ultimate buyer, do this more or less automatically. With the regression method and statistical forecasting, regional differences must be estimated; with the regression method, this usually means estimating regional differences in the independent variables. (Sample size may limit the accuracy of the estimates for individual geographic areas with either the survey of buyer intentions or the behavior of the ultimate buyer.) For many products, general economic activity in some form is one of the key independent variables; unfortunately, no satisfactory data are available on regional differences. Although the Department of Commerce publishes annual estimates of income payments by states, there is a need for research into regional differences in cyclical changes and the development of reliable indicators. In setting geographic sales quotas the assumption is usually made that cyclical changes will be spread *uniformly* over the country. This assumption is implicit in the two standard methods of estimating geographic market potentials described in Chapter 8: Index of Buying Power (consumer products) and the Standard Industrial Classification method (industrial products). Such an assumption is very probably not valid. The spatial dimension of demand is discussed at length in Chapter 8.

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[10] For a brief comparison of the three services, see *Business Week,* June 18, 1955, pp. 132–35.

[11] Robert G. Brown, *Statistical Forecasting for Inventory Control,* (New York: McGraw-Hill Book Co., Inc., 1959). Words in parenthesis have been added. This is a simple, highly readable reference on statistical forecasting.

Evaluation of Forecasts. The careful study of each forecast will contribute to the accuracy of the method used.[12] This may seem elementary, but once a method is selected, all too often its degree of accuracy is never verified nor are written records even kept of its performance. In fact, it is astounding how seldom forecasts are evaluated in practice. The lack of verification may avoid embarrassment to the forecaster, but it does not make for progress in forecasting techniques. To omit verification is comparable to conducting an experiment without learning the result.

The weather forecasters have long been concerned with the verification of forecasts and have built up an extensive body of literature on the subject. Sales forecasters can benefit from an examination of readings in this field, although a good deal of it is specialized to weather problems.[13] Professional advancement of weather forecasters is determined in part by the accuracy of their forecasts; perhaps sales forecasters should be evaluated in the same way!

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[12] Harry V. Roberts, "A Technique for Appraising and Improving Forecasts," *Broadening the Perspectives of Marketing* (Boston: American Marketing Association, June, 1956), pp. 97-102. Also, James H. Lorie, "Operations Research and Short-Run Sales Forecasting" (unpublished address delivered before the Second Annual Meeting of the Operations Research Society of America, May, 1954); and Ferber, "Sales Forecasting by Correlation Techniques," *op. cit.*, pp. 228–32.

[13] See "Panel Discussion on Forecast Verification," *Bulletin of the American Meteorological Society,* XXXIII (1952), 274–78; G. W. Brier and R. A. Allen, "Verification of Weather Forecasts," *Compendium of Meteorology* (Boston: American Meteorological Society, 1951), pp. 841–48; Irving I. Gringorten, "The Verification and Scoring of Weather Forecasts," *Journal of the American Statistical Association,* XLVI (1951), 279–96.

Two major criteria are essential in evaluating forecasts—one is statistical terms, the other in economic terms. A statistical evaluation is concerned with the relative accuracy of forecasts. An economic evaluation compares the benefits the company receives from forecasting with the cost of carrying on the forecasting activity.

It is meaningless to assess the accuracy of a method without considering the amount of variability of the product being forecast. The sales forecast of a staple food item will almost always be more accurate than the forecast of television sales. The "persistence forecast" is perhaps the simplest device for obtaining an evaluation of relative accuracy.[14] The technique assumes that sales for the period under consideration will change by the same per cent as they did in the previous period. The evaluation is made by comparing the forecast derived by the given method with the forecast that would have been made by using the persistence technique. The more inaccurate forecasts should be carefully investigated in order to determine the reasons for the deviations from actual sales. The investigation may result in avoiding the repetition of past mistakes.

An economic evaluation is also necessary; management's interest in forecasting is not academic. The benefits of forecasting must be balanced against the costs involved. In the first place, "errors on the high side" might be less costly than "errors on the low side," if excessive inventories are less damaging to the company than being out of stock. An "out-of-stock" condition may result not only in the loss of a sale now but also in the loss of future sales to that customer. If promotional expenditures are set in relation to expected sales, however, errors on the high side may result in substantial losses.

Certain broader economic criteria can be applied. Increased accuracy can usually be attained, but only at greater cost; the problem is to judge the benefits of the various relative accuracies obtainable in terms of their comparative costs. Forecasting methods must be *plausible* in order to make executives receptive to their use. Executives, because of their "feel" of the market, can often make a contribution to the improvement of the method if they understand it. Sophisticated econometric models have sometimes run afoul of this criterion.

The more *durable* the method, its capacity to be effective under changing conditions, the more useful it is. *Flexibility,* as a criterion of evaluation, is related to the need to achieve durability. By using flexible determinants, which can be adjusted for changing conditions, greater durability is possible. Finally, *availability of data* is important. The only useful data are those available at the time the forecast is needed, even though, logically, they may seem less relevant than certain data unavailable at the appropriate time.

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[14] Lorie, *op. cit.*

Forecasting the Sales of New Products

The lack of historical data prevents past relationships being used in forecasting the sales of new products. Quizzing potential buyers is generally of limited effectiveness because of the complications involved in imparting to the buyer a conception of the characteristics and performance of the new product. Relatively few new products are really new, however, and close analogues are usually available.

A more useful method of forecasting sales of new products is the "test market" as described in Chapter 4. It may, however, be difficult to simulate realistically the marketing conditions that would exist if the product were being marketed nationally. Magazine advertising that might be used nationally, for example, is not feasible for a local market alone, but the "split-run" technique whereby different versions of an advertisement appear in different copies of the same issue of a national magazine can often be used. Perhaps the greatest single error in the use of test markets is the tendency to make the test a "success"; advertising that is greater in weight than can be duplicated profitably on a national or regional basis is frequently used. Sales and product managers may be more active in the field when distribution is being established in test markets. It is not uncommon to bring in salesmen from other territories to help complete distribution. Consequently, test results no longer match a typical sales operation and the results in the test market are distorted.

Companies are beginning to use field experimentation, which is introducing the product by more than one method simultaneously as described in Chapter 4.

The "evolutionary" and "substitute" approaches to forecasting the sales of new products have been suggested. The first consists in assuming that the new product is an evolutionary step from an existing product and that the sales of the established product constitute the market potential for the new product. It is applicable only where the new product is merely a slight variation of the old product. The second approach analyzes the product as though it were a substitute for some product or service. Often a new product is a substitute for more than one thing. The sales of the established product constitute a rough, penetrable upper limit of sales for the new product. The basic question with either approach is: "What will be the rate of displacement?" Formulating the research problem in terms of finding rules for the rate of displacement has the additional marketing advantage of focusing ". . . attention on what needs to be done to improve, promote, or price the new product for faster encroachment."[15]

LONG-TERM FORECASTING

Long-term sales forecasting—a period longer than a year—is fairly common, although less so than short-term forecasting. According to the survey summarized in Table 2, out of 30 companies, eight prepared five-year forecasts of economic conditions, two made ten-year forecasts, and one made a 15-year estimate. Some of the automobile companies annually prepare a ten-year forecast of sales.

The increasing futurity of business decisions and therefore the need for long-term demand forecasting, has been emphasized in management literature. "Sixty years ago few business decisions had a futurity of more than a few years . . . . Today it is the exceptional business decision that does not have a futurity of ten years or more. . . . Technological progress has succeeded in converting the businessman from the short-range trader of classical economics to the long-range planner of today who has to take a twenty-year view."[16]

The experience of a chemical company illustrates the relation between long-term demand forecasting and developing a marketing plan. The company introduced a high-grade plastic product to the market in 1945. A study estimated that sales would double within five years. The problem was twofold: (1) the company had only limited production capacity and (2) considerable technical information was required for the effective utilization of the product. The company set a high price on the product so that it could "ration" demand until production capacity could be increased; at the same time, however, the company made heavy personal selling expenditures to inform potential users of the product's properties. Thus, time was gained to meet the growing demand, and the company was in a good competitive position once the growth had been attained. The personal selling efforts decreased the number of users who might have become disgruntled had they unknowingly misused the product.

The most obvious need for a long-term forecast of sales is to make decisions concerning the purchase and location of warehouses and other physical plants and equipment; these decisions involve financial outlays which necessitate the planning of financing programs. Other equally important long-term decisions are those which must decide whether or not to enter a new market area. Executives must also make decisions that involve long-term estimates concerning product diversification, acquisition of a dealer organization, certain advertising outlays, and building and training a sales force. As in Chapter 7, promotional expenditures are sometimes viewed as an investment and "payout" periods are computed. These actions will affect the long-term sales forecast so that the forecast is often a "conditional" forecast; its estimate is based upon a given marketing plan. An equally good example of long-term forecasts is the marketing research expenditures involved in product development. It is probably true that some of these marketing outlays are even more "specialized" and less transferable to other uses than are invesments in physical plants and equipment. Therefore, long-term forecasts erring on the high side can constitute costly mistakes in the marketing area of company operations as well as in other areas.

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[15] Joel Dean, *Managerial Economics* (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1951), p. 174.

[16] Peter F. Drucker, "Management Science and the Manager," *Management Science*, I (1954–55), 121.

In the past, workers largely absorbed the shock of bad long-term planning, particularly in "sick" industries. In the future, the adverse effect of forecasting mistakes on a company's rate of return may become more quickly apparent as a result of the guaranteed annual wage, since planning mistakes that lead to unemployment will cause the company to incur the cost of supplementary unemployment pay.

Determinants of Long-Term Changes

Long-term changes in demand occur mainly through certain basic forces in the economy; these can be classified into demographic, economic, psychological, and technological.[17] These four kinds of determinants are very general, and the discussion may appear arid. If the reader will take some product from his own experience and analyze it in terms of how these basic forces might affect its sales, he will find the discussion much more meaningful. The demand for a particular product may be closely related to only one determinant or to more of them. The demand for baby carriages, for example, is closely related only to the birth rate. The determinants are interrelated. Technology has given rise both to higher incomes and a shorter workweek, and the latter has in turn affected the tastes of the buying public. Both the "do-it-yourself" movement and the increased popularity of casual clothing can be attributed in part to the greater amount of time spent away from the job.

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[17] For a series of papers on long-term economic forecasting, see National Bureau of Economic Research, *Long-Range Economic Projection* (Princeton, N. J.: Princeton University Press, 1954).

Demographic Factor. The demographic factor has several dimensions; the most significant for our purposes are level of population and age distribution. Geographic location is discussed in Chapter 8. Sex distribution has not changed enough to justify attention here, but it does vary significantly among parts of the United States and among different countries.

Population growth in the United States has strongly influenced the demand for consumer goods. Table 4 shows the enormous growth in population that has occurred in less than ten years; in the period 1954 to 1960 the number of consumers in all age brackets increased by more than 18 million. This factor alone raises significant marketing problems which can better be solved if they are anticipated by forecasting.

TABLE 4

POPULATION—UNITED STATES

Year	*Population (Add 000)*
1954	162,417
1955	165,270
1956	168,176
1957	171,198
1958	174,060
1959	177,261
1960	180,670

Source: *Statistical Abstract of the United States 1961,* 82nd Annual Edition, U. S. Department of Commerce (Washington, D. C.: U. S. Government Printing Office, 1961), pp. 5 and 6.

For long-term forecasting it is *future* population that is appropriate, and these estimates are included at the top of Table 5; for example, within the next 20 years we expect our population to increase by almost 50 per cent. Population change has even more significance for many consumer products when examined from the standpoint of age distribution. The extent of the anticipated change in the age distribution is also shown in Table 5.

Table 5 suggests that the number of "over-60" people will be increasing both absolutely and relatively, although after 1980 the declines in number of births during 1920 to 1940 will affect the size of this age group. This caused H. J. Heinz Company to begin market testing as the prelude to adding a line of foods specifically for this

TABLE 5
FUTURE UNITED STATES POPULATION
(Projection Assumes 1955–57 Level of Fertility)
(Add 000)

Age, Years	1965	Per Cent of Total	1970	Per Cent of Total	1975	Per Cent of Total	1980	Per Cent of Total
All ages........	195,747	—	213,810	—	235,246	—	259,981	—
Under 5........	21,243	11	24,190	11	28,111	12	31,991	12
5 to 9..........	20,837	11	22,089	10	25,029	11	28,940	11
10 to 14.......	19,216	10	20,893	10	22,145	9	25,080	10
15 to 19.......	17,267	9	19,262	9	20,936	9	22,186	9
20 to 24.......	13,502	7	17,343	8	19,331	8	21,001	8
25 to 29.......	11,459	5	13,640	6	17,460	7	19,441	7
30 to 34.......	11,068	6	11,582	5	13,753	6	17,554	7
35 to 39.......	11,914	6	11,118	5	11,633	5	13,792	5
40 to 44.......	12,374	6	11,872	6	11,094	5	11,608	5
45 to 49.......	11,389	6	12,214	6	11,735	5	10,982	4
50 to 54.......	10,741	5	11,092	5	11,913	5	11,464	4
55 to 59.......	9,340	5	10,271	5	10,634	5	11,443	4
60 to 64.......	7,759	4	8,695	4	9,600	4	9,973	4
65 to 69.......	6,395	3	6,900	3	7,783	3	8,646	3
70 to 74.......	4,892	2	5,376	3	5,853	2	6,654	3
75 to 79.......	3,327	2	3,764	2	4,182	2	4,593	2
80 to 84.......	1,840	1	2,158	1	2,476	1	2,784	1
85 and over....	1,084	1	1,351	1	1,578	1	1,849	1

Source: Adapted from U. S. Bureau of Census. *Illustrative Projections of the Population of the United States by Age and Sex 1960–1980,* Series P–25, No. 187 (November 10, 1958), p. 16.

market.[18] Staff members of the Ford Motor Company, for example, believe that the number of teen-agers is an important influence upon a family's decision to buy a car. The data in Table 6 are cited by the Ford Motor Company as evidence.

Economic Factor. Here we are concerned with long-term changes

TABLE 6
CHILDREN HAVE IMPORTANT INFLUENCE ON CAR BUYING
Per Cent Who Purchased New and Used Cars in First Half 1955*
among Families

Income	With Teen-agers	Children below Teen-agers	No Children
$5,000 and over..............	29%	20%	17%
$3,000 to $5,000..............	18	16	7
Under $3,000................	16	13	6
Total..................	23%	17%	10%

* Based on June, 1955, survey.

Source: Survey Research Center, University of Michigan and Ford Motor Company, Marketing Research Economic Studies, March 26, 1956.

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[18] *Advertising Age,* June 27, 1955, p. 39.

in purchasing power, the Financial Status variable in the buyer behavior model. Although gross national product is not a precise measure of purchasing power, it does give an indication of the levels of income. Table 7 sets forth the actual and anticipated gross national product, corrected for price changes. Also, the data in the third column are adjusted for increases in population. The total gross national product reveals the basis for the growing total demand, but the adjustment for population growth provides a more precise indication of the future demand for specific types of products.

TABLE 7
GROSS NATIONAL PRODUCT—UNITED STATES

Year	GNP (Billions in 1954 Prices)	GNP (Per Capita in 1954 Prices) †
1960	439.2	2,439
1965*	529.0	2,702
1970*	627.0	2,932
1975*	741.0	3,151
1980*	877.0	3,374

* Projected estimates.
† Based on Series 2 Population.

SOURCE: E. F. Denison, *The Sources of Economic Growth in the United States and the Alternatives before Us,* Supplementary Paper No. 13 (New York: Committee for Economic Development, 1962), p. 261.

Still another useful refinement of the income factor is the distribution of income among the population.[19] The reduction of the degree of inequality in the distribution of income that has occurred within the last 20 years has had a significant influence on consumer markets. Income and estate taxes have leveled off top incomes, which has had a depressing effect upon the market for such luxury items as palatial yachts and elegant mansions. Also, increased wages and high levels of industrial employment have raised the lower-income brackets. Changes in income distribution between 1936 and 1948 are shown in the upper portion of Figure 26. The lower two fifths of the population in the income scale realized the largest percentage increase in income between 1936 and 1948. However, the lower portion of the table presents perspective in indicating the extent of current inequality in the income distribution.

Buyer Psychology. Both buyer psychology and technology are highly amorphous and present similar problems of measurement. The human being serves as a unit of measurement for the population factor, and dollars serve as a measure of income, but there are no satisfactory units for measuring the psychological and technological factors. Also, the two are often strongly interrelated.

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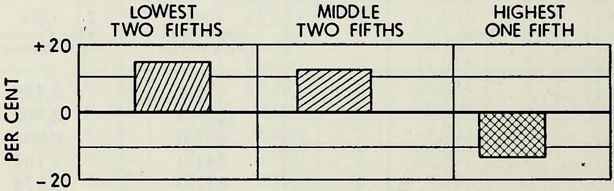
[19] For a study of changes in income distribution, see Selma Goldsmith, *et al.,* "Size Distribution of Income Since the Mid-Thirties," *Review of Economics and Statistics,* XXXVI (1954), 1–32.

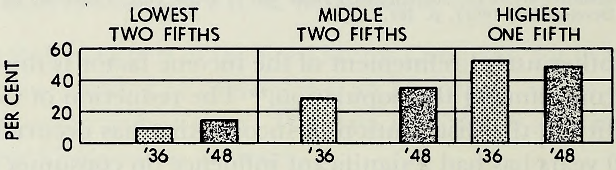
The psychological factor refers mainly to the buyers' needs or drives and predispositions; the definition and significance of these concepts for buyer behavior were set forth in Chapters 3 and 4. The reader will recall that these are significantly shaped by the social forces that surround the buyer.

FIGURE 26

Changes in Shares of All Income Received by Income Groups, 1936–48 (1948 Dollars)



Shares of All Income Received by Income Groups, 1936–48 (1948 Dollars)



Source: Adapted from Council of Economic Advisers, *The Economic Report of the President,* January 6, 1950 (Washington, D.C.: U. S. Government Printing Office), p. 97.

The psychological factor is of obvious significance; for example, an economist, Richard Stone, has said, "On the basis of observations it appears that changes in taste and habits are extremely important over time in determining the amount demanded of many commodities."[20] On a more specific level, a joint study made by Procter & Gamble Company and the laundry industry suggests that, currently, less than one half of the bed sheets washed at home are also ironed. This development, it is concluded, has had an adverse effect upon the sales of home ironers.[21] Per capita consumption of candy fell from 20.5

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[20] Richard Stone, *The Measurement of Consumers' Expenditure and Behaviour in the United Kingdom 1920–1938* (Cambridge, England: Cambridge University Press, 1954), Vol. I, p. 270.

[21] *Business Week,* February 27, 1954, p. 54.

pounds in 1944 to 17.6 pounds in 1951; the decline caused serious concern among the confectionery manufacturers.[22]

An interesting and plausible thesis concerning a trend in the source and significance of consumer needs has been advanced by Professor Riesman.[23] Human values shape the consumer's motivation, specifically his higher-order drives (secondary, tertiary, etc.). Riesman argues that the *source* of human values is changing, particularly in an economy with a high standard of living which permits the buyer wide latitude in the way in which he allocates his income among products. In Professor Riesman's view there are three kinds of people according to their sources of values each kind being associated with a particular stage of social and economic development: tradition-directed, inner-directed, and other-directed. The tradition-directed individual, found primarily in primitive societies, receives his values from the traditions that constitute the culture of his society. The inner-directed receives his values from the family; this quality characterizes the inhabitants of small towns and immigrant groups in large cities. The other-directed person receives his values from other members of his *peer group*. The idea of a peer group is merely a special case of the concept of social group from Chapter 3; it is made up of the fairly intimate members of his age and social class. This other-directed person is to be found in highly urbanized areas. Since there is a definite trend toward urbanization in the United States as will be shown in Chapter 8, Riesman's thesis suggests that a large proportion of the American population is becoming "other-directed."

Then, as to the significance of this thesis for consumption, Riesman argues that in this other-directed society, which is characterized by high purchasing power, consumption occupies a highly significant social function. We communicate with and classify other people by comparing consumption standards. We accept them into our peer group according to whether their standards of taste agree with ours. "The proper mode of expression requires feeling out with skill and sensitivity the probable tastes of the others and then swapping mutual likes and dislikes in order to maneuver intimacy."[24] Our knowledge of and ability to discourse on the merits of products, thus, influences our relative position in our peer group. The implications of this social role of consumption is an explicit part of Riesman's thesis—there are

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[22] *Business Week,* June 27, 1953, p. 52.

[23] David Riesman, *The Lonely Crowd* (abridged ed.; Garden City, N. Y.: Doubleday & Co., Inc., 1953).

[24] *Ibid.,* p. 94.

"taste leaders" who determine the products that are acceped by their groups. Most members of the group surrender independence of judgment in order to maintain acceptance by the group.

The Riesman thesis places motivation and group theory of Chapter 3 in perspective, and it has many implications for marketing managers which can be illustrated briefly. The taste leaders should be identified and made a major target of marketing effort. As we tend toward "other-directedness" the consumer will become more discriminating and better informed which will probably require that the nature of advertising be changed. The rate of change of tastes will be greater and will require the manufacturer to pay more attention to product decisions. The American population, however, is currently quite heterogeneous, being made up of both inner-directed and other-directed individuals, and presumably marketing practices must be tailored to each group.

Technology. By the technological factor is meant new production and distribution processes and new products. Technology is the consequence of a new idea, an invention, plus putting the idea to work and weaving it into the industrial and social fabric. Joseph A. Schumpeter adopted the term "innovation" to apply to this process of putting the idea to work and made it the cornerstone of his theory of economic growth.[25] Some of the significant innovations in marketing have been the supermarket and mass communication, and more recently, television.

Changes in technology are ordinarily measured through the concept of "productivity," but in this form, it is a mixture of many things, such as new machinery, better managerial techniques, and more efficient labor. The concept is useful to the marketing manager in understanding long-term economic growth, cost, and price trends. An average annual increase of 2½ to 3 per cent in gross national product has been estimated as due to improved productivity.

Predicting the effects of technology for a decade is perhaps not too difficult for the knowledgeable and careful observer; therefore, research can often be expended profitably. After an intensive study of technology for the Twentieth Century Fund, one writer concluded that most major technological changes in industry can be observed 15 years on the horizon.[26] This contradicts the common view that the effects of technology on American industry are dramatically sudden.

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[25] Joseph A. Schumpeter, *The Theory of Economic Development* (Cambridge, Mass.: Harvard University Press, 1934).

[26] Irving H. Siegel in an address before the Second Annual Business Economists Conference, University of Chicago, 1953. For much of the address, see Irving H. Siegel, "Technological Change and Long-Run Forecasting," *Journal of Business,* XXVI (1953), 141–56.

The idea, the invention, occurs long before successful innovation is possible, because in the innovating process, economic criteria are applied such as will it pay? This is why technological change is rapid during a war—the sharp shift in demand toward military goods makes many innovations economically feasible when they were not feasible before.

Examples of the effect of technological change are readily observable, and only a minor example will be offered here. In the case of the demand for home ironers mentioned previously, the new synthetic textiles have had an adverse effect upon the sales of home ironers because many of the textiles do not require ironing.

The experience of the manufacturers of recordings offers an example of (1) the joint effects of these long-run factors and (2) their significance for marketing strategy. In the late 1930's and again in the spring of 1955, the recording industry experienced sharp price cuts when consumer prices generally were stable. At both times, in profit terms the price cuts were probably wise for both the initiating companies (Columbia in the 1930's and RCA in 1955) and others in the industry, since the increase in sales for the industry as a whole more than compensated for the drop in unit price. Long-term changes in demand had not only increased the demand for records but also its price elasticity had probably increased. Roughly, the significant factors were thought to be the increase in total purchasing power, a shift toward a more equal distribution of income, and population growth. Also, technological change permitted lower unit costs for playing devices, and consumer tastes in music had changed.

Methods of Long-Term Sales Forecasting

One method of forecasting the long-term demand for a company's product is to proceed from an analysis of the determinants of long-term demand.[27] The method of a telephone company illustrates this, although the forecast period of two years is somewhat shorter than is ordinarily considered "long-term." As a public utility the company is faced with a need to plan its capital outlays more accurately than most companies; the company's failure to meet the public demand for telephone service can have serious repercussions from the standpoint of public relations and ultimately for the price it can charge. The company's forecasting procedure is to make each year a two-year forecast of the demand for main telephone and trunk line service in each of its telephone exchanges (cities).

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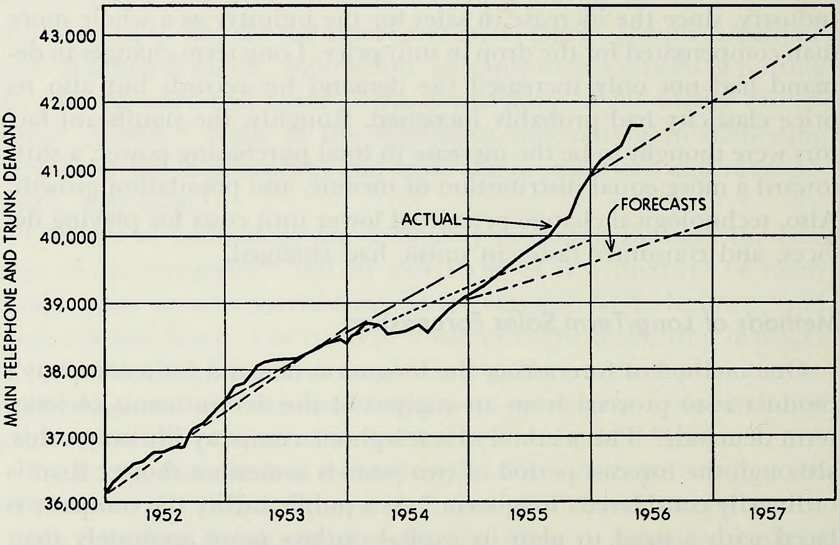
[27] For the analysis underlying 40-year projections of a number of commodities, see Hans H. Landsberg, *et al., Resources in America's Future* (Baltimore, Md.: Johns Hopkins Press, 1963).

The telephone company's experience in forecasting the demand for one telephone exchange for the years 1952 to 1956 is shown in Figure 27. Demand is defined as "total installed telephones" plus "unfilled requests for new service." The solid line indicates the level of actual demand, and the dotted lines indicate the forecasts of demand. The two different kinds of broken lines are used to distinguish among the two-year forecasts for different periods. Figure 27 suggests that the forecast has become increasingly more inaccurate, but the "persistence technique" would provide a more meaningful evaluation of the accuracy. The demand determinants used in making the forecast vary among the various cities, but expected residential building plans is typically the most important determinant.

FIGURE 27

TELEPHONE EXCHANGE SERVING CITY OF 115,000 POPULATION AND ITS ENVIRONS



Another method of long-term forecasting is the curve-fitting type of operation which, although mechanical, can be quite useful as long as the particular curve is selected according to logical criteria. It can best be combined, however, with qualitative and quantitative data about the demand determinants.[28]

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[28] For a discussion of the application of logical criteria in curve fitting, see Edwin Frickey, *Economic Fluctuations in the United States* (Cambridge, Mass.: Harvard University Press, 1942), especially chap. i.

Long-term company planning in many instances requires a prediction of where demand will be in the long-term future. A plant-location decision obviously requires such a forecast. The analysis underlying geographic shifts in economic activity is contained in Chapter 8.

SUMMARY

A sales forecast is the first step in short-term planning, both marketing and company-wide. Not all companies can benefit equally from accurate short-term forecasting. Under certain conditions, a considerable expenditure of funds is justified to attain reasonably accurate forecasts. A number of methods of forecasting are available, and more than one method is sometimes used in the same company to provide a check for consistency. A continual analysis of past forecasts in order to appraise their accuracy is an essential step to improved forecasting.

Long-term sales forecasts are less often required than short-term forecasts, but the increasing futurity of decisions is definitely causing management to lay greater stress on long-term sales forecasts than they have in the past. Long-term forecasting differs in methodology from short-term forecasting. A different set of demand determinants may also be involved.

Chapter 6

COMPETITION AND MARKET PLANNING

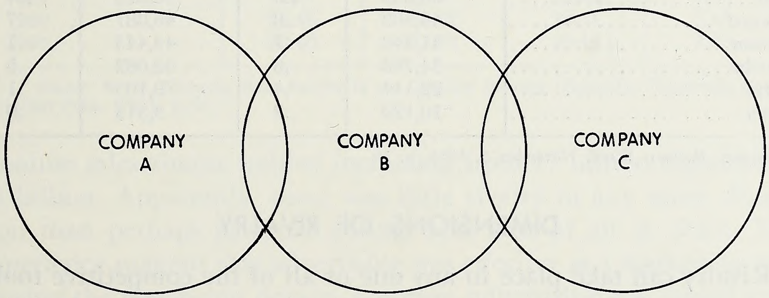
In this chapter competition is used in its everyday business sense of recognizing that rival companies exist and to a greater or lesser extent attempt to take sales from one another. The unremitting pressure of the actions of rival companies creates many of the problems that a marketing executive must solve, and the attempts to counter the moves made by these rival companies involve some of the most sophisticated problems of marketing. Market planning requires anticipating the actions of competitors, and insofar as possible, preventing them from anticipating your actions. The latter is usually accomplished by keeping your own plans confidential. Occasionally, outright deception may be used. Two large middle western companies produce the equipment for high-voltage electric transmission lines and compete with each other by bidding for sales, which requires the bidder to name a price without knowing his rival's price. One source of information used by Company A to find out about Company B's pricing plans is to quiz the mutual supplier of metal as to his knowledge of Company B's intentions. The supplier usually picks up considerable plant gossip in his calls. Company A went one step further, however, by telling the supplier that it intended to use much higher towers in a construction project than was actually planned. Company A hoped that when Company B received this information about the higher towers, Company B would conclude that, because of the cost of the additional tower height, Company A would name a higher price in its bid for the contract. Thus, Company B would be encouraged to bid a higher price, and so increase Company A's chances of getting the contract. There are obvious ethical problems in deception.

The actions of a company depend upon what it thinks its competitor is going to do. This condition, which was illustrated by the example in the previous paragraph, is termed "mutually recognized interdependence." This interdependent nature of rivalry characterizes most of the situations in the American economy in which marketing decisions play a major role. As transportation and communication have improved historically and more companies have come to serve the national market, interdependence has increased.

Competitive interdependence is more prevalent than it usually appears to be. Not all the members of an industry compete directly, but interdependent behavior is created by a series of "linked markets." Figure 28 illustrates the idea of linked markets. Company A does not compete directly with Company C, yet Company A's behavior is conditioned by what it thinks C will do, because any significant change on A's part will be transmitted to C via B's behavior. Distance and the consequent freight costs may tend to seal off markets from each other, but in general, a certain amount of the overlap exists, as suggested in Figure 28.

FIGURE 28

OVERLAPPING MARKETS INCREASE INTERDEPENDENCE



Rivalry takes the form of jockeying for market position, which is probably best illustrated among the automobile manufacturers. Market shares, illustrated for 1954 and 1955 in Table 8, are followed with keen attention by executives in the industry. The behavior of companies contending for market position sometimes suggests that market share is being used as a criterion of decision rather than as a measure of marketing performance. This apparent confusion is also perhaps most obvious in the auto industry, where the publicity given to shares of market suggests that a company's sales are thought to be affected by the size of the company's share. For example, car buyers may have been motivated to buy a Cadillac in the 1955–56 season rather than a Lincoln *because* Cadillac's share of the total market had increased as Lincoln's share declined. Cadillac's share increased from 1.8 per cent in 1953–54 to 2.0 per cent in 1954–55. Evidence on whether or not the size of a company's market share does actually influence its sales is apparently lacking.

TABLE 8

AUTOMOBILE REGISTRATIONS

	12 MONTHS, SEPT. '53–AUG. '54		12 MONTHS, SEPT. '54–AUG. '55	
	Number	% of Market	Number	% of Market
Chevrolet	1,355,192	24.5%	1,545,806	23.5%
Ford	1,360,608	24.6	1,506,608	22.8
Buick	487,501	8.8	677,050	10.3
Plymouth	475,387	8.6	558,956	8.5
Oldsmobile	349,080	6.3	531,309	8.1
Pontiac	343,825	6.2	482,067	7.3
Mercury	317,892	5.8	319,552	4.9
Dodge	181,674	3.3	245,933	3.7
Chrysler	114,917	2.1	143,453	2.2
Cadillac	97,685	1.8	133,956	2.0
De Soto	90,444	1.6	108,116	1.6
Studebaker	113,271	2.0	101,105	1.5
Nash	86,855	1.6	90,925	1.4
Packard	43,308	.8	46,087	.7
Hudson	41,348	.7	43,443	.7
Lincoln	34,768	.6	32,082	.5
Willys	22,114	.4	9,103	.1
Kaiser	10,120	.2	3,313	.0

Source: *Business Week,* November 5, 1955, p. 30.

DIMENSIONS OF RIVALRY

Rivalry can take place in any one or all of the competitive tools: product, marketing channels, price, advertising, and personal selling. The question a marketing executive must answer is: "Which of the competitive tools should I use?"

The profit-maximization rule is fundamental in deciding which competitive tool should be used—the action that will contribute most to company's profit should be the executive's choice. In practice, however, this rule alone is often of limited usefulness, because to attempt a profit evaluation of all possible alternatives would result in a paralysis of decision. As a practical matter, a set of rules is needed that, when applied to a concrete situation, will limit the number of alternatives to a manageable few. Then the profit criterion can be applied meaningfully in selecting one alternative from among the manageable few. The rules, or "qualitative criteria" as we will call them, operate by telling us that certain key characteristics of the situation can be objectively identified, and these characteristics will aid us in predicting the consequences of the various courses of marketing action. Ideally, then, we need to know the objective characteristics of a marketing situation which will suggest the use of one marketing tool as opposed to another.

The cigarette industry offers an illustration. Advertising accounted for most of the 86 per cent increase in American Tobacco Company's market share in the six-year period from 1925 to 1931, as shown in Table 9.[1] The increase was from 21 to 39 per cent. The company's absolute sales almost trebled increasing from 17 billion cigarettes to 46 billion. Apparently, there was little rivalry in any other dimension than perhaps personal selling, and least of all in price. This experience suggests that advertising was effective as a marketing tool. During the depression decade, however, advertising was found to be relatively ineffective. By using price (a package for 10 cents), the economy brands increased their share from 0.34 per cent in 1931 to over 14 per cent in 1939. Of the four big companies, the American Tobacco Company suffered most by losing share from 39.4 per cent

TABLE 9

PER CENT OF NATION'S CIGARETTE PRODUCTION

YEAR	MAJOR COMPANIES			
	Lucky Strike American	Chesterfield Liggett & Myers	Camel Reynolds	Old Gold Lorillard
1925	21.18%	26.61%	41.60%	1.90%
1926	19.32	29.44	41.22	1.66
1927	21.84	29.49	38.46	3.79
1928	28.72	25.03	33.72	7.01
1929	32.47	26.95	30.40	7.48
1930	36.46	25.02	28.51	7.47
1931	39.40	22.73	28.43	7.03

Source: W. H. Nicholls, *Price Policies in the Cigarette Industry* (Nashville: Vanderbilt University Press, 1951), p. 62.

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[1] W. H. Nicholls, *Price Policies in the Cigarette Industry* (Nashville: Vanderbilt University Press, 1951), pp. 58 ff. The information about shares of market is in terms of production rather than sales. The absolute data are in terms of sales.

in 1931 to 22.7 per cent in 1939.[2] Knowledge of the precise conditions that made advertising an effective tool in the period 1925 to 1931 and an ineffective one in the period 1931 to 1939 would be helpful in choosing between advertising and pricing in the design of the marketing plan.

Price Rivalry

In this chapter we will attempt to describe the objective characteristics that partially determine the use of price. We say "partially" because we are concerned here only with competition, which is but one of the things that determines the price a company should set. The other major determinants are buyer behavior, cost, structure of distribution, and the law. Further, only price will be dealt with because (1) rivalry is keenest in the price dimension, (2) relatively more is known about the role of price in company rivalry, and (3) the study of price rivalry provides insights into the design of the total marketing plan vis-à-vis competitors.

Company sales are usually more sensitive to price changes than to the other competitive tools, but marketing executives typically advise against using price. The apparent contradiction between the fact that company sales are sensitive to price and that price is not used as a means of obtaining sales requires some explanation. There are exceptions to the statement that company sales are sensitive to price; for example, because of the phenomenon of "price-quality association," a buyer may think that a low price indicates an inferior product. This insensitivity to price is possible in a poorly informed market, but it is the exception and not the rule.

Competitive interdependence discourages the use of price. In the typical market of only a few rivals, buyer sensitivity to the price of one company results in the company's rivals also being sensitive to his price. A price cut will usually be met quickly by competitors, and unless total industry sales are increased sufficiently by the lowered industry price, all of the companies in the industry may be in a less satisfactory position after the price is reduced. The price cut, however, may increase industry sales significantly. In the phonograph recording industry, a price cut has probably been shown to be wise marketing strategy on two occasions, even though on each occasion, competitors followed immediately. In 1940 Columbia led in a price cut, and in late 1954, RCA was the first to make a cut in price.

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[2] *Ibid.*, p. 91.

Thus, the use of price requires a high degree of sophistication, and marketing executives often relegate it to a "thou-shalt-not" category of marketing tools rather than risk a mistake. Let us proceed to examine the various kinds of price rivalry and why they occur.

THE NATURE OF COMPETITION

A discussion of competitive behavior raises three questions:

1. *Competitive Behavior.* How do the companies constituting an industry behave in relation to one another with respect to price? Do they tend to use price rivalry or do they follow a "live-and-let-live" policy of very limited price rivalry? Or do they work out formal agreements not to compete?

2. *Structure of Competition.* Why do the companies in a particular industry exhibit the type of price rivalry found in that industry? An understanding of the cause of this behavior is important to the marketing manager in gaining insights into the competitive behavior in his industry and thus in predicting future behavior. All of the things taken together that determine an industry's competitive behavior are called the structure of competition.[3] The structure of competition should not be confused with the uncontrollable features discussed in Chapter 1, although they are similar.

3. *Economic Performance.* From the viewpoint of public policy, what are the consequences of any given type of behavior? The public policy implications of competition are termed "performance." By "performance" is meant the extent to which an industry gives results that are desirable in an economic-welfare sense. Although of critical importance to the operation of the economy as a whole, the social features of competitive behavior are generally not of direct significance to the marketing manager. The concept of the structure of competition becomes more meaningful when examined against the background of the performance found under differing structural conditions.

Types of Price Rivalry

In the typical market, companies have conflicting attitudes. In the first place, each company would like the industry to be as profitable as possible; the greater the industry profits become, the greater will be the absolute value of a company's share of industry profits—other things being equal. Thus, agreements not to compete on price are encouraged, and since the price is higher than it otherwise would be, industry profits may consequently be much greater. On the other hand, each company wants the largest possible share of the total market, and since price cutting may be an effective device for increasing a company's share, rivalry is encouraged. An examination of competitive behavior is essentially an analysis of these conflicting pressures and the type of behavior that emerges from their resolution.

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[3] We use "competitive structure" to mean roughly the same thing as "market structure" which has wide acceptance in the literature of industrial organization.

There are five patterns of competitive behavior that can be distinguished: (1) perfect collusion, (2) effective collusion, (3) limited collusion, (4) price leadership, and (5) chaotic competition.[4]

Perfect Collusion. Perfect collusion involves complete *co-ordination on all competitive fronts,* not only price. It necessitates the establishment of a mutually satisfactory sales quota (expected market share) for each company and usually requires the transfer of production between companies. Such extreme collusive behavior probably appears somewhat alien to the American student of business; in fact, it is seldom if ever found in the United States, where stringent antitrust laws discourage arrangements among companies to avoid price rivalry. It is rarely found even where public policy is much less stringent—for example, in Great Britain. The reason for its rarity is fairly obvious: significant intercompany cost differences exist in most industries, and when the differences are sufficient, perfect collusion requires that production be transferred to the most efficient companies if total profits for the industry are to be maximized. If such transfers take place, the inefficient companies are then handicapped in bargaining for their share of the market whenever existing arrangements expire, because production personnel will have been disbanded. These inefficient companies would be "disarmed" competitively, and so they prefer to carry on at least some degree of competition, even though the law may not require it. Conceivably, the inefficient companies could be paid to remain out of the market in perpetuity, and although such arrangements have been made, they are not usual because of the inability of the participating companies to agree on the value of such an arrangement.

Effective Collusion. Effective collusion exists when companies set identical prices, divide the market among them, but do not agree on the nonprice competitive dimensions of industrial research, advertising, salesmen, and the like. An agreement to share the market in a certain way is usually essential to effective price agreements; otherwise, the temptation to secretly shade the price in order to sell more becomes too great. Even with market-sharing arrangements, extreme rivalry on the nonprice dimensions encourages competitors to break over the boundaries of the markets that have been allocated by the market-sharing agreement. Effective collusion has been fairly common in Great Britain in the past, and examples of it have been discovered by the antitrust agencies in the United States. Except in local areas where the federal antitrust laws do not apply, effective collusion is probably uncommon. Rather than encouraging price rivalry, however, the law may actually prohibit price cutting in some instances.[5]

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[4] For an application of this analysis to five industries, see John A. Howard, "Collusive Behavior," *Journal of Business,* XXVII (1954), 196–204.

Limited Collusion. Limited collusion implies the type of intermittent price agreement and intermittent price rivalry that occurs when fuller collusion is limited by internal dissension within a group of companies and by secret price shading. Its key characteristic is the absence of market-sharing arrangements. As the files of the antitrust agencies readily reveal, this type of behavior is often found in American industry.

Price Leadership. In a large number of American industries a considerable degree of price co-ordination among competitors takes place in the complete absence of overt collusion. The behavior found among four cigarette companies (American Tobacco Company, Liggett & Myers, Reynolds, and Lorillard) from 1925 to 1950 illustrates the so-called "tacit" variety of collusion, which by definition occurs without formal agreement.[6] Throughout this 25-year period, prices to the wholesaler were almost identical among the four companies, even though formal collusion was not apparent. Advertising rivalry, however, was vigorous during the period. Price changes are minimized in these industries in order to limit possible instability,[7] but the changing cost and demand conditions resulting from a dynamic economy force occasional price changes.

Price changes arising out of cost variations or shifts in demand usually take place through price leadership. One company becomes the accepted leader, and no one changes price until the leader changes; then all companies follow. The fact that prices were identical among the large cigarette companies for over a quarter of a century is explained by leadership.[8] An essential condition of leadership is that the leader be able to lead *upward* price changes, since any company of significant size can usually force an industry-wide price decline. In the rayon industry, American Viscose has been the leader for more than 30 years, even though its share of the market has declined markedly in that period.[9] R. J. Reynolds was the acknowledged price leader in the cigarette industry prior to World War II, but since then, until 1950, on at least two occasions American Tobacco Company led price increases.[10]

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[5] See the discussion of the Robinson-Patman Act in Chapter 9.

[6] Nicholls, *op. cit.*, p. 181.

[7] The "kinked demand" theory has been advanced in the past to explain this price rigidity. See, however, George J. Stigler, "The Kinky Oligopoly Demand Curve and Rigid Prices," *Journal of Political Economy*, LV (1947), 432–49.

Price leadership is often necessary to avoid market instability when price changes are made. An interesting question arises, "Why is a particular company the accepted leader in the industry?" There are essentially two kinds of price leaders in an industry: (1) the dominant-firm variety and (2) the barometric variety.[11] The first type exists when one company has a dominant share of the market; in the extreme case, the industry is made up of one large company with a "competitive fringe" of many small companies. The competitors can sell all they wish at the price set by the leader, so there is no reason for them to cut prices below him. Alternatively, if the small companies set a higher price, they will lose sales to the leader. In this situation, the leader estimates his most profitable combination of price and sales volume, using his known costs of production and subtracting from industry demand the volume he estimates that his competitors will offer at his proposed price. Then he proceeds to set this price.

The "barometric" leader, on the other hand, derives his name and position from the fact that his actions in setting prices are believed by the rest of the industry to be a good barometer for them to follow. The other members realize that the price set by the leader is a satisfactory one and that he acts with tolerable promptness when a change in market conditions suggests the need for a different price.

As was mentioned earlier, American Viscose has been the leader in the rayon industry for many years. Prior to the depression American Viscose held the leadership position because of its dominant share of the market: for example, in 1924 American Viscose had 73 per cent of the market when its nearest rival held 11 per cent. Since the depression its share has fallen sharply—in 1945 it was 30 per cent. The leadership of American Viscose was maintained after World War II because other members of the industry respected its good judgment shown over many years of estimating the market conditions—it became a barometric leader.[12]

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[8] Nicholls, *op. cit.,* p. 178.

[9] Jesse W. Markham, *Competition in the Rayon Industry* (Cambridge, Mass.: Harvard University Press, 1952), pp. 102–5.

[10] Nicholls, *op. cit.,* Table 51, p. 175.

[11] An extreme case of barometric leadership has been set out as a third form of leadership and called "price leadership in lieu of an overt agreement." The purpose for doing so, however, was to aid in understanding the public policy problem of price leadership. See J. W. Markham, "The Nature and Significance of Price Leadership," *American Economic Review,* XLI (1951), 891–905.

Chaotic Competition. "Chaotic" competition is another type of behavior often found in a market. Frequently an identifying characteristic of chaotic competition is that after the price leader has cut his price, the follower will cut below the original lowered price instead of merely meeting it. This behavior arises under one of the following conditions: (1) when one or more of the companies fail to realize that there is strong interdependence between their actions and the behavior of competitors; (2) when wrong predictions are made as to how competitors will react; (3) when there are significant differences among the companies as to the price that will best serve the interests of the industry; or (4) when a company feels fairly sure that it has strength enough to win. The experience of a large Middle Western producer of electrical equipment illustrates the case of a company that failed to realize the extent of interdependence between its actions and those of its competitors. In 1952 it brought out an improved product but maintained the usual price in the industry. A period of severe price competition ensued when it began to gain share as a result of the superior product. On the basis of this experience, when the company again brought out an improved product two years later, it raised the price above the going price in the industry.

The more extreme form of chaotic competition, usually called a "price war," is not likely to occur for a long period because losses will force a truce. A truce will be brought about in a way which depends upon structural conditions. These will be discussed in the next section. The periodic price wars observed in local retail gasoline markets are illustrative of chaotic competition.

An interesting example of a "price war" took place in June, 1951, among the leading New York department stores: mainly, Macy's, Abraham & Straus, and Gimbel Brothers. This quotation, from the *New York Times,* suggests the drama of the event:[13]

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[12] Markham, *Competition in the Rayon Industry, op. cit.,* p. 105.

[13] *New York Times,* May 30, 1951, p. 1.

> PRICE WAR SET OFF IN STORES: SOME GOODS REDUCED 30%
>
> Thousands of women shoppers snapped up bargains yesterday when a full-scale price war developed among leading New York department stores. One hour after Macy's offered 5,978 items for sale at 6 per cent less than so-called "fair-traded" minimums set by manufacturers, Gimbels began to meet the cuts.
>
> By noon, Abraham & Straus in Brooklyn cut prices on some of the items offered by Macy's 10 per cent and more. Macy's soon undersold A. & S. by 6 per cent in line with its traditional cash savings policy, and Gimbels again matched Macy's. Hearn's, Bloomingdale's, Namm's and many other stores joined in the battle reluctantly.
>
> . . . As rival stores met its prices, Macy's consistently went 6 per cent below them. By closing time, the original 6 per cent cut was a dimly recalled memory. Some reductions went as far as 30 per cent. From 3:00 P.M. on price cuts were made almost on a half-hourly basis.

The effect of this rivalry on prices can be observed in Table 10 by comparing the actual prices charged at the end of the first week of the "war" with the fair-trade column, which shows the prices before the price rivalry began. Bayer aspirin prices probably were the most dramatic. The fair-trade price was 59 cents per 100 tablets, as indicated. At the end of a week the price had been cut to 12 cents as shown in Table 10, and by June 14 it was as low as 4 cents. The cost to the store per 100 tablets is believed to have been 43 cents, which, if true, indicates that at the lowest point the seller was losing 39 cents on each bottle.

The losses, however, were not as serious as the price cuts might suggest, because the milling crowd of customers bought many items on which prices were not cut. Also, the customers were attracted to the event from great distances. The "war" was probably an effective means of unloading heavy inventories accumulating in anticipation of heavy consumer buying for 1951—buying that did not materialize as expected. Also, it was confined to "fair-traded" items which are subject to a high markup. Nevertheless, Macy's was the only department store in favor of a price war; the other department stores were quite embittered by Macy's action in precipitating it, and some went so far as to propose legal action against Macy's.[14]

Different industries will exhibit different types of competitive behavior, and even within a given industry, behavior may vary from time to time. If the analysis set forth in this chapter is to be helpful to the marketing manager, it must aid him in understanding the competitive behavior in his industry. The next section will be devoted to

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[14] *Ibid.*, June 4, 1951, p. 1, and June 7, 1951, p. 26.

TABLE 10

Chaotic Competition

Item	Fair Trade	Gimbels		Macy's		A. & S.	
		Open	Close	Open	Close	Open	Close
Dormeyer mixer (4200)	$46.50	$28.19	$28.19*	†	†	$28.19	$28.19
RCA-45 record attachment	12.95	8.19	8.19	$ 8.19	$ 8.19	8.19	8.19
Webster three-speed player	88.24	59.99	59.99	56.39	56.39	56.39	55.49
Waterman fountain pen	3.95	2.11	1.98	1.94	1.94	1.98*	1.89
Underwood typewriter	68.60	44.95	44.95	44.95	44.95	44.95*	44.95
Novel, "From Here to Eternity"	4.50	1.64*	1.64*	1.74*	1.74*	1.69	1.69
Proctor steam iron	15.45	‡	‡	12.17	12.17	12.15	12.15
Coffeematic percolator	29.95	19.13	18.88	19.13	19.13	18.98	18.88
Regina waxer	64.50	44.39	37.55	37.55	37.55	37.55*	37.55
Bayer aspirin (100's)	.59	.12	.12	.15	.12*	.15	.12
Ronson lighter	6.60	‡	‡	3.76	3.76	3.70	3.70
Ronson lighter	8.25	†	†	7.74	5.39	5.35	5.35
Ronson lighter (butane)	13.50	†	†	10.29	10.29	10.25	10.25
Sunbeam hedgetrimmer	43.50	35.24	32.19	32.19	32.19	32.19	32.19
Rainking No. K sprinkler	8.50	7.49	7.49	7.49	7.49	7.49	7.49
Rainking No. H sprinkler	7.65	5.96	5.59	5.95	5.59	5.95	5.59
Rainking No. D sprinkler	5.95	4.94	4.64	4.94	4.64	4.89	4.59
Rainking nozzle	1.39	1.31	1.21	1.31	1.31*	1.29	1.19
Koroseal hose, 25 feet	5.75	5.06	4.76	5.06	5.06	5.05	5.05
Koroseal hose, 50 feet	9.80	7.41	6.94	6.94	6.94	7.39	6.89
Koroseal hose, 75 feet	13.85	12.22	11.46	11.46	11.46	11.45	11.45
Kaywoodie pipe	4.00	‡	‡	3.29	3.76	2.89	2.89
Kaywoodie pipe	10.00	8.41	8.41	8.21	7.91	7.95	7.75
Lake golf cart	6.95	†	†	5.62	5.62*	4.98	4.98
Dunlop tennis balls (3)	1.75	†	†	1.29	1.21	1.29	1.19
Swank jewelry	5.00	†	†	3.21	3.02	2.98	2.98
Glass fishing rod	9.95	†	†	6.98	6.95*	5.00	5.00
Jack Kramer tennis racket	18.50	†	†	9.98	9.98*	8.95	8.95

* Latest price reported; item out of stock. † Not reported. ‡ Item out of stock.

Source: *New York Times,* June 7, 1951, p. 26.

a discussion of the objective market characteristics that determine competitive behavior. These characteristics taken together make up the structure of competition.

Competitive Structure

One of the leading authorities on market organization has written, "It seems probable that if Firestone, like God in another context, had not existed, the structure of competition in the tire market would have created him."[15] This observation points to the fact that the competitive behavior found in an industry does not spring so much from the personalities of the executives in that industry as from the structure of competition within which the industry operates.

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[15] Edward S. Mason, "Price and Production Policies of Large-Scale Enterprise," *American Economic Review,* XXIX (Supplement, Part 2) (1939), 71.

The opposite view is sometimes found in marketing literature. An analysis of the men's clothing industry, for example, states, "The root of the industry's problem . . . is its 'basic inferiority complex'—a chronic fear of cutthroat competition which leads it to underprice its products to the point where there is no margin for promotion, for profit and for expansion."[16] The implication of the quotation is that, if the executives in the industry were rid of their complex, profits would be higher in the industry. Analysis suggests that an examination of the competitive structure of the men's clothing industry would provide a more meaningful explanation of the behavior, but this is not to say that individual executive personalities never influence the degree of rivalry in an industry.

The structure of competition is defined as all those things which the executive takes into account in determining his price policies and practices. The concept of competitive structure, to be useful to the marketing manager, however, need not be so all-inclusive as the definition suggests. By studying certain key dimensions of the structure, the marketing manager can obtain useful insights into the competitive behavior in his industry.

There are several dimensions of competitive structure, and their significance for competitive behavior revolves around their influence upon the degree of interdependence among company actions in a given market. The most common are: (1) the number and size-distribution of the companies selling in the market, (2) the extent of interfirm product differences, (3) the movements of industry demand over time, (4) the size and kind of buyers, (5) the marketing channels used, (6) the cost conditions, (7) the degree of spatial concentration of the market, and (8) the law.

Number and Size-Distribution. The number and size-distribution of the companies is one of the most significant competitive structure dimensions. The fewer the companies the greater the likelihood that interdependence will exist among the companies, so that insofar as possible, price will be avoided as a competitive tool. Profits presumably are higher in concentrated industries, although good evidence to support this is not abundant. However, in comparing the profits of 40 industries, Bain found the profits to be significantly higher in industries where eight sellers had more than 70% share of market than in industries where eight sellers had less than 70% of the market.[17] But, in a concentrated industry if price competition should develop—because of some upheaval in the industry—chaotic competition may result.

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[16] *Advertising Age,* July 2, 1956, p. 6.

[17] Joe S. Bain, *Barriers to New Competition* (Cambridge, Mass.: Harvard University Press, 1956), pp. 195–99.

The significance of the size-distribution of the companies has already been suggested in the earlier discussion of price leadership. The more an industry is characterized by one large firm and several small ones, the easier it will be for the large company to act as a leader, since it can enforce its leadership more effectively. This leadership is likely to prevent periods of "price fighting" when prices must be changed as a consequence of varying cost and demand conditions.

A phenomenon related to size-distribution is the possibility of two essentially antagonistic *groups* of companies within an industry. It is a common situation to find in a market a few large companies and several small companies. In this situation it appears that two blocs tend to be formed—one composed of large companies and one of small companies—and it appears that some degree of inter-bloc competition is present. There is some clear evidence of this tendency in the British economy, where in the past collusive arrangements have been legal but not in the sense of being legally enforceable. Since trade associations are the vehicle through which collusion is usually carried out in Britain, sometimes there are two trade associations, one whose membership is made up of large companies, and the other of smaller companies.[18]

Product Differences. Intercompany product differences tend to dull the sharp edge of interdependence. Real product differences—those which can be determined by objective measures such as by laboratory tests—are referred to here as opposed to the imagined differences that exist where objective tests are not possible (the "right" amount of chrome trimming on automobiles), and/or where the buyer is not well informed about the objective differences. With product differences there are, of course, possibilities for intercompany price differences without the development of serious competition.

In order to relate this discussion to conventional economic analysis, the reader should recall that price theory attempts to explain competitive behavior by use of the two dimensions: (1) number of companies and (2) degree of product differentiation. Conventional theory sets up four cases, three of which are: (1) many companies selling an undifferentiated product (pure competition), (2) many companies selling a differentiated product (monopolistic competition), and (3) one company with no competitors (monopoly). By "many" is meant enough so that no company is affected by any one of its competitors' actions. This situation of "many sellers" is sometimes found among the many small companies that make up the "competitive fringe" of an industry in which there are a few dominant firms. The significance of the second case is that the companies have freedom of pricing action because there are no close competitors. In the first case no company has freedom to price and must accept the current market price, because if it prices above the market it will not sell anything, and it is foolish to price below the market price because it can sell its entire output without reducing the price. The inadequacy, however, of these three market situations to aid the marketing manager is readily apparent when it is recognized that typically he is concerned with the fourth case of conventional economic theory, oligopoly, where the product may be either differentiated or undifferentiated. Here, the pricing action of one company elicits a reaction on the part of one or more of its competitors,[19] and this competitive interdependence gives rise to many of the features of competition observed in the real world such as barometric leadership. These comments are by no means intended to imply, however, that all industry is characterized by oligopolistic behavior.

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[18] See, for example, The Monopolies and Restrictive Practices Commission, *Report on the Supply of Insulated Electric Wires and Cables* (London: H. M. Stationery Office, June 10, 1952), p. 8.

Industry Demand. Movements in industry demand over time are a critical influence upon competitive behavior. "BEER SALES DOWN, RIVALRY UP" is a headline from a business periodical. These movements are mainly of three types—cyclical, secular, and seasonal.

The effect of the business cycle varies among products. In general, it can be said that capital goods and consumer durables are most sharply affected. When the business cycle brings a decline in industry sales, an increase in the sales of any one company can take place only at the expense of competitors' sales, and interdependence consequently increases. Usually changes occur in cost as well as in demand, which increases the need for a price change. This necessity for changing prices opens the possibility of intercompany disagreements about the correct price and misunderstandings about the intentions of the participants. Both are conducive to chaotic competition.

A dramatic example of the effects of a cyclical change in demand upon competitive behavior occurred in the heavy electrical equipment industry price war in January, 1955. It has been estimated that

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[19] For a discussion of classical oligopoly theory, see William Fellner, *Competition among the Few* (New York: Alfred A. Knopf, Inc., 1949), chap. ii.

as a result of this price war the industry suffered a $200 million decline in gross sales during a three-week period. Price cuts of 50 per cent and more were reported. The dominant source of the "war" appeared to be the 1953 recession, supplemented by the fact that the backlog of postwar demand was being satisfied. Another dimension of the competitive structure, the size-distribution of buyers and sellers, was also relevant in this situation; the public-utility industry segment is made up of buyers large enough to play even such large sellers as General Electric and Westinghouse against each other.

Also, some economists argue that the effect of price on total industry sales for some products, especially capital goods, varies directly with the business cycle—sales are more strongly affected by price during prosperous periods than in periods of depression.[20] If so, for such products as capital goods, price is less effective as a tool for expanding industry sales in periods of depression. Finally, as general business declines, consumers probably become less willing to try new products, preferring to confine their purchases to familiar products. Product competition then is less useful as a device for increasing market share. Companies selling cyclically sensitive products will resort to almost any means to avoid price competition, knowing that price rivalry will probably result in heavy damage to each company.

Alternatively, as the level of business conditions improves, companies tend to discontinue collusive practices which during the depression they had taken on as protection against chaotic competition. This tendency is suggested by the post–World War II experience of the British economy, where there is evidence of companies voluntarily discontinuing collusive practices initiated during the depressed interwar period.[21]

The secular or long-term aspect of demand as a dimension of the competitive structure determining competitive behavior is also important. A secular decline occurs when either technological change or a shift in consumer taste causes buyers to discontinue certain purchases. The producing companies suffer a consequent loss in sales. A good example is the bituminous coal industry, which received a temporary boost by World War II, but which over the long term has been losing to other sources of power, e.g., oil and electricity. A current example of an increasing secular demand is the television manufacturing industry.

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[20] See, for example, Richard B. Heflebower, "The Effect of Dynamic Forces on the Elasticity of Revenue Curves," *Quarterly Journal of Economics,* LV (1940–41), 652–66.

[21] Howard, *op. cit.,* p. 202.

The effects of secular changes in demand upon competitive behavior are similar to those of a cyclical nature, except that secular declines are usually more or less permanent; consequently, some of the companies making up an industry subject to a secular decline must eventually go out of business. The companies may be able to shift their manufacturing and distributing facilities to other products; but if the equipment is highly specialized, continuous losses may be required to eliminate the excess capacity. Such industries are said to be "sick." Fortunately, the rapid growth of the American economy has kept this problem to a minimum. When excess capacity has occurred, the remedy has usually been to discontinue capital investment, and the growth of the economy has solved the problem.

Through a careful demand analysis, a company can fairly accurately predict whether the industry will be "sick" or whether the decline in demand is only temporary. If serious excess capacity is likely, management is faced with only two alternatives: (1) to escape with as little loss as possible or (2) to seek government help. The answer to the problem is, of course, to produce new products.

Seasonal fluctuations in demand can probably have a destabilizing effect upon competitive behavior. Observation suggests, however, that typically the effect is not nearly so serious as cyclical and secular declines.

Size and Kind of Buyers. The size and kind of buyers usually exert considerable influence on competitive behavior. The larger the buyer, the more he is able to play one company off against another in order to obtain the most favorable purchase. The large mail-order houses, Sears, Roebuck and Montgomery Ward, have often been charged with such practices. In a short-term sense this is inevitable, since the larger company inherently has greater market power, although it is easy to exaggerate this power. But, it is often overlooked that both companies appear to have been careful in protecting their long-term interest by not driving smaller companies from which they buy into bankruptcy. In many instances the smaller companies, if properly managed, can produce more economically, a fact of which Sears, Roebuck and Montgomery Ward are well aware.

The "kind of buyer" is defined here in terms of the level of knowledge he possesses. This could be called a facet of the degree of product differentiation discussed previously, where a distinction was made between real and imagined product differences. Here we are concerned with the buyer's view, rather than the objective intercompany product differences dealt with under "product differentiation." The more a buyer is capable of making intercompany product comparisons, the more likely he is to turn his attention with confidence to other features of the purchase, such as price, and to select products accordingly. When buyers become price conscious, pressure is put on selling companies to use price as a competitive tool. The lowering of price by one or more selling companies usually means that competitors will follow.

As the model of buyer behavior in Chapters 3 and 4 has suggested, there is an enormous range in the level of buyer knowledge among the various product markets. One extreme is illustrated by the consumer buying an appliance, perhaps a television set, which has both highly technical and aesthetic features. The consumer is faced with a wide variety of choices, and he often takes only a limited time in which to make the purchase decision. Many features of such a purchase are not amenable to an objective evaluation, even if a consumer had the time to make all possible comparisons and the budget to pay a testing laboratory. Many of the conditions indicating whether a buyer will effectively make these comparisons among brands or suppliers can be inferred from the model of buyer behavior.

Marketing Channels. The greater the length of the marketing channel, in terms of the number of middlemen to which each manufacturer sells (e.g., wholesaler, retailer, and contractor), the greater the chances for price rivalry. A number of links increases the number of prices that must be co-ordinated among competitors if price rivalry is to be prevented. Moreover, it may be difficult to force the wholesaler and retailer to observe the prices agreed upon by the manufacturers. Finally, when companies in the same industry use *different* marketing channels, the problem of co-ordinating prices becomes even greater.

The rubber-covered cable section of the electric cable manufacturing industry in Great Britain has for several years been more competitive than other sections of the industry.[22] The major reason appears to be that it sells through wholesalers and retailers, whereas the other sections of the industry sell directly to the buyer, and therefore have fewer prices to co-ordinate.

Cost Conditions. Cost conditions exert an influence upon competitive behavior. One feature is the stability of costs; for instance, manufacturing companies using such metals as zinc are subject to ever changing costs because of fluctuating zinc prices. To compensate for the fluctuating costs, prices of their products must often be changed.

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[22] The Monopolies and Restrictive Practices Commission, *op. cit.*, pp. 32-39.

Another feature of cost is the proportion of fixed costs, which are those costs incurred irrespective of the level of production and sales. A company will ordinarily continue to produce and sell as long as the price is high enough to yield a revenue that covers current operating costs, even though little or nothing is contributed to overhead (fixed costs).[23] In companies manufacturing steel, for example, where there are large amounts of capital equipment, fixed costs are high relative to current operating costs. In this situation, if price wars break out, price can be driven to an extremely low level before the companies with higher current operating costs stop producing. In such industries, companies are more careful than ever to avoid price as a means of obtaining sales. They often adopt some pricing convention to prevent rivalry, such as the basing-point method of pricing, which will be discussed in Chapter 12.[24]

Spatial Dimension. The spatial features of the market consist of the geographic locational pattern of competitors and buyers. It is possible for a company to be almost completely isolated from the influence of its competitors because of shipping costs. Isolation can occur either because of weight and/or bulk of the product or because the product is highly perishable. This isolation is seldom complete, however. The other extreme is represented by companies located adjacent to each other and selling to buyers located in the immediate area. Thus, the locational pattern of the market, which will be treated in Chapter 8, exerts a strong influence on the degree of interdependence among the competitive actions of the companies involved.

Law. Historically, the antitrust laws have had as their objective the enforcement of price rivalry. They undoubtedly serve to discourage formal price agreements. It would be naive, however, to assume that formal agreements are completely eliminated in fact, and it would be even more naive to assume that co-ordinated behavior is prevented. Also, a portion of the law, the Robinson-Patman Act, for example, actually limits price rivalry, as we shall see in Chapter 9.

Other Dimensions of Structure. Other dimensions of the competitive structure may be significant in particular instances. If the company sells a *large number of different products,* interdependence in total tends to be dulled. The attention of the marketing manager is so dispersed among the various products that he does not have the time to change prices as often as is usually required in keen price competition. The situation is exemplified in the department store where the "departmental" organization dominates. Some time ago, for example, R. H. Macy & Company sold "400,000 separate and distinct items, not counting colors and sizes."[25]

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[23] The distinction between fixed and current operating costs will be discussed at length in Chapter 7. The argument, as stated here assumes that variable and marginal costs are similar in magnitude over the relevant range of variability of production; for the validity of this assumption see Chapter 7.

[24] J. M. Clark, "Basing Point Methods of Quoting Prices," *Canadian Journal of Economics and Political Science,* IV (1938), 477–89.

The department store also illustrates another dimension—*internal organization.* A careful study of department store pricing concludes:[26]

> . . . the large size of the store, its administrative organization, its budgetary procedure, the interrelationship of the units within the same corporate group, and the relation of owners to management . . . encourage the use of such practices as: the one-price policy, full cost pricing, price lining, and leader selling.

An aspect of internal organization, the degree of integration, is said to have influenced competitive behavior in the petroleum industry. This will be illustrated subsequently in the example of retail gasoline competition.

Another structural dimension often mentioned by economists is the extent of barriers to the entry of new competitors. Although barriers to entry do have real significance for the economic performance of an industry, they probably do not have much influence on competitive behavior.[27] If there are strong barriers such as patents, the companies will probably compete in the same way as if there were no barriers to entry. The difference is that prices, and probably profits, will be higher.

Economic Performance and Social Welfare

A complete analysis of competitive behavior requires, even for the marketing manager, some attention to public interest. In the first place, there is undoubtedly some relation between competitive behavior and the level of profits—and profits are of paramount importance to the company. In addition, in the course of his career the marketing manager is likely to have contact with the antitrust agencies through his trade association activities, or perhaps, even directly through an antitrust case against his company. Consequently, he is more capable of communicating with the antitrust officials if he is aware of the public policy implications of competitive behavior. The limitations of space, however, prevent more than a very brief discussion of the complex subject of social welfare.

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[25] Richard M. Alt, "Competition among Types of Retailers in Selling the Same Commodity," *Journal of Marketing,* XIV (1949–50), 441–47.

[26] Richard M. Alt, "The Internal Organization of the Firm and Price Formation: An Illustrative Case," *Quarterly Journal of Economics,* LXIII (1949), 92–110.

[27] However, see Bain, *op. cit.,* p. 4.

Obviously, society wants "good" performance from industry; however, it is difficult to determine whether or not performance is "good" in a particular industry. Two methods are used to determine the level of industry performance: (1) examine performance directly and (2) examine the structure of competition on the assumption that certain structural conditions must necessarily yield good performance. Economists have debated about the virtue of these two methods of examining the monopoly problem.

Those who advocate relying on structure alone define it in terms of the number and size-distribution of companies in the industry and the extent of collusion. Those who refuse to concede that attention to structure defined in this manner will suffice, usually employ the following criteria of performance: (1) the level of profits, (2) progressiveness with respect to new products and new processes of production, (3) the amount of advertising and selling expenses incurred by the companies, (4) the extent to which reductions in cost are passed on to buyers in the form of lowered prices, and (5) the degree of excess capacity in the industry. "Good" performance would be said to exist when profits are not too high, new products and new methods of production are introduced, advertising and selling expenses are not excessive, cost reductions from improved technology lead to price reductions, and when there is no excess capacity in the industry.[28]

There is a general unanimity in the United States that formal price agreements can be presumed to have an unfavorable effect upon the performance of an industry, and therefore should be prohibited. In Great Britain, on the other hand, the performance approach is used in evaluating even these collusive arrangements. Performance criteria have been used in the United States to attack the monopoly problem posed by companies large enough to dominate the market and suspected of causing unsatisfactory industry performance.

THE RETAIL GASOLINE MARKET: AN EXAMPLE

Almost everyone has observed price wars among service stations, and has wondered why "gas wars" are found in some communities and not in others. Fortunately, a careful study of competitive behavior in the Los Angeles retail gasoline market, 1946–50, throws light upon this question and illustrates at some length the relation between the structure of competition and the kinds of price rivalry that occur.[29]

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[28] For an application of these performance criteria, see John A. Howard, "British Monopoly Policy: A Current Analysis," *Journal of Political Economy,* LXII (1954), especially pp. 300-304.

Observed Patterns of Competitive Behavior

In the Los Angeles market there were three subpatterns of rivalry, or, in other words, there were three kinds of competitors: conservative competitors, aggressive competitors, and defensive competitors.

The conservative competitors carefully avoided using price to stimulate sales, but they did make extensive use of such nonprice efforts as advertising and maintaining clean, well-equipped, conveniently located stations. These conservative competitors were the seven major-company filling stations (Standard Oil of California, General Petroleum, Union Oil Company, Shell Oil Company, Texas Company, Richfield Oil Company, and Tide Water Associated Oil Company) and their subsidiary-company dealers (Signal Oil Company, The Petrol Corporation, Rio Grande Oil Company, and the Seaside Oil Company). Altogether they had approximately 75 per cent of the filling stations in the Los Angeles area.

The aggressive price competitors which were the large but independent stations, had 10 to 15 per cent of the retail outlets and 15 to 20 per cent of the volume. As their title suggests, substantial price reductions were offered by the aggressive price competitors as a means of attaining large sales volume.

The defensive price competitors were the small independent stations. They used price reductions willingly but only when there was danger of encroachment by a competitor. Volume of sales was the essential difference between the aggressive and defensive competitors, since the defensive price competitors neither wanted nor had the capacity for handling a large volume of sales. Typically, the defensive competitors occupied a poor location, were often untidy, and sold a little-known brand.

Structural Characteristics Causing These Patterns

The question now to be answered is: "Why did these particular subpatterns of rivalry emerge?" In line with our theory of competitive behavior, the answer to this question is largely contained in certain objective characteristics of the market which taken together are called the structure of competition.

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[29] Ralph Cassady, Jr., and Wylie L. Jones, *The Nature of Competition in Gasoline Distribution at the Retail Level* (Berkeley: The University of California Press, 1951). See especially chaps. vii to x. The interested reader is urged to consult the original source because the description contained here is merely illustrative and omits many important details.

The first market characteristic was industry demand, which in the retail gasoline market had two significant features: (1) The sales of all the competitors in the market would not have increased very much by an industry-wide price cut. In other words, it is believed that the volume of passenger auto driving is not significantly affected by the price of gasoline. Thus, a general price cut would not favor the industry as a whole. (2) Gasoline consumption by passenger cars had been increasing during the past decade, which was a consequence of a generally expanding economy and a shift of population to the Los Angeles area. There were more cars and a greater usage of these cars. Also, cyclical shifts in consumer income had little effect in gasoline sales, although there was roughly a 20 per cent seasonal variation in gasoline sales. No large number of service stations were fighting for their existence as compared with a situation where gasoline consumption is constant, or, worse yet, declining. One station could increase its sales without necessarily taking sales from some other station.

A second market characteristic was that the competing companies could be classified according to "majors" and "independents." The majors were the large integrated producers, and the stations selling their brands were discouraged from price cutting because of the danger of "civil war" in which two stations selling the same brand would fight each other. The independents were mainly distributive companies only and composed of both large-station and small-station operators who could be much more flexible in their pricing.

Although there was probably little technical difference in gasoline among the stations, automobile drivers were generally not well informed, which permitted the major companies to charge a slightly higher price before the price war. Their product was believed to be better, but the quality differential in the consumer's mind was so small that a publicized price cut could cause a shift of sales to the lower-priced stations. Because consumers were poorly informed, a drastic cut in the price of a little-known brand of gasoline could, however, give rise to a "price-quality" association in the buyer's mind.

The location of service stations in relation to consumers was such that, in general, each station served an approximate geographical area, but a lower price could overcome the distance limitation among many consumers.

The aggressive price competitors were encouraged to use price because of the cost conditions. Their high-capacity stations required a high volume of sales, and because of the large proportion of fixed costs, they could afford to take a significantly lower price so long as it served to increase their volume. Also, their capacity encouraged them to attract customers from a relatively greater distance than did the other two types of competitors. Moreover, a somewhat lower price was essential, because their brands did not have the degree of market acceptance enjoyed by the stations of the major companies.

Finally, the aggressive competitors usually acquired their supplies of gasoline at a lower price than did other stations. Their volume purchases permitted larger, more economical one-stop deliveries by their suppliers.

The law was probably not a significant determinant of behavior except that perhaps the "majors" were a little less aggressive because of their fear of an antitrust suit. They were also limited by their fear of "civil war." However, they had a degree of market acceptance which made the need for price rivalry less essential.

Changes in Structure Lead to Changes in Behavior

A price war which had been in the making since 1948 developed in 1950. Between January, 1948, and January, 1949, the share of the seven major companies dropped from 68 per cent to 60 per cent. Stimulated by their loss of share, the conservative competitors made significant price cuts.

The price war was an outcome of changes in demand and supply. Consumers were becoming more aware of the offerings of the aggressive price competitors and were adjusting their purchasing behavior accordingly. Also, the decline in consumer incomes that occurred in the last half of 1949 probably caused them to be more price conscious (in behavioral terms, they became more sensitive to the price cue), but this does not suggest that they decreased their purchases as measured in physical quantities.

On the supply side, there was a growing surplus of gasoline stocks, and more stations of the aggressive price competitor type were constructed.

PREDICTING COMPETITIVE BEHAVIOR

Although the behavior of competitors poses some of the most important problems facing a marketing executive, there are no hard-and-fast answers. If he carefully examines the competitive structure of the markets in which he is selling, however, he can gain insights that will better enable him to predict the kinds of competitive behavior that will appear in his industry.

Although these insights pertain mainly to price rather than to non-price marketing effort, it is precisely in the field of price competition where the most serious mistakes can be made. The consequences of the fear of price competition are that marketing managers do not price as effectively as they might—the tendency is "to leave well enough alone."

Although prediction consists largely in forecasting changes in the relevant dimensions of the competitive structure, an analysis of rivals' financial statements can provide information about their efficiency.[30] From this financial information an idea can be obtained as to which companies are most likely to determine the price level of the industry. If they are making satisfactory profits and no changes in the structure of competition or costs are anticipated, it may be reasonable to assume stability of prices. In deciding whether and how to enter the West Coast market, a large manufacturer of hot-water heaters analyzed the Dun & Bradstreet credit ratings of potential competitors in that area to determine the strength of the competition it would face.

The competitive structure of a company is subject to unceasing change, although the intensity of the change may vary from time to time. The automobile industry during the period 1953–54 illustrates change in the number and size-distribution of competitors. The six small companies (Kaiser, Willys, Nash, Hudson, Studebaker, and Packard) merged and became three companies, which reduced the total number of companies in the industry from nine to six with corresponding changes in the size-distribution. The same type of change can occur among buyers, and it may affect competitive behavior as indicated earlier. For example, these mergers in the auto industry probably increased the intensity of rivalry among the companies supplying parts to the auto industry. The marketing managers of the companies affected had advance warning, however, because the trade press carried news of the impending changes many months before they occurred.

The business cycle affects the demand for most industries; although efforts of the government to reduce the amplitude of the cyclical swings in economic activity may be effective, it is fairly certain that there will continue to be some fluctuations. The marketing manager should work closely with the company economist and make use of the economist's forecasts of business conditions. Short-term sales forecasting is important because it should catch indications of changes in demand. Short-term forecasting of the prices of materials and labor can be helpful. Annual estimates of long-term industry demand combined with estimates of total industry capacity to produce will provide an indication of whether excess capacity may be accumulating. Methods of short-term and long-term sales forecasting were presented in Chapter 5.

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[30] Wilson Wright, *Forecasting for Profit* (New York: John Wiley & Sons, Inc., 1947), pp. 73–78.

Except for the business cycle, there are no changes in the dimensions of the competitive structure which occur with a significant degree of regularity and which affect most industries; therefore, it is difficult to generalize about methods of predicting competitive behavior. The marketing manager can only acquaint himself as thoroughly as possible with his industry and be particularly alert to changes in the dimensions that we have discussed.

Over the long term, however, the marketing executive has some control over the competitive structure of his industry which is helpful in predicting competitive behavior. An increase in his company's share of the market can encourage stability. So long as this expansion of share does not run afoul of increasing costs or the law, the marketing advantages of size may justify increasing the share of the market. The marketing executive can often differentiate his product more sharply from competitors' products and dull the keen edge of interdependence, which will give him wider latitude in setting prices without endangering industry stability. By the careful selection of products he may stabilize company-wide sales.

SUMMARY

In this chapter we have been concerned with the influence of competition upon marketing decisions. Typically, competition bears most heavily on pricing decisions, and a framework of analysis was set forth to use for explaining why different kinds of price rivalry emerge. This framework is useful in predicting the kind of price rivalry that is likely to occur. The analysis is not as useful for understanding nonprice rivalry, although it partially explains why relatively more of a marketing executive's time is devoted to designing nonprice strategy rather than pricing strategy.

Chapter 7

COST ANALYSIS AND OPTIMIZING

In this chapter *demand* and *cost* are brought together to provide *optimal* ways of choosing a marketing *plan* where *profit* is the goal. Spatial, distributional, and legal considerations are ignored. Temporal considerations, however, are emphasized in that the short run is distinguished from the long run: marginal analysis provides the appropriate optimizing concepts for short-run decisions while capital budgeting provides the appropriate optimizing concepts for long-run decisions. But capital budgeting, too, is in principle an application of marginal analysis. The economic concepts set forth here underlie almost all of the work in management science and operations research.

COST ANALYSIS

A marketing manager needs an intimate knowledge of cost analysis, since with few exceptions, all marketing decisions require cost estimates; for example, cost analysis will enable him to avoid the many uneconomic marketing outlays that are rationalized by the irrelevant argument that expanded sales "will spread the overhead." A preliminary discussion of three aspects of cost analysis will clarify much that follows: (1) the different uses of cost data; (2) the criteria for classifying costs in assembling cost data; and (3) the criterion of relevancy.

Uses of Cost Data. Some of the most frustrating problems that a marketing manager faces in his need for cost data arise because, historically, accountants have not been concerned with decision making outside the realm of finance. Cost estimates are required for (1) financial reporting; (2) managerial control; (3) public regulation; and finally, (4) decision making. Accountants have been concerned, historically, with these problems in the order given. Also, corporate accounting systems are constructed to serve the first two uses, and typically, by far the major amount of time spent by an accounting department is devoted to the problems incident to financial reporting and managerial control. Corporate accountants are becoming aware, however, of the kind of cost estimates required for decision making. "Direct-costing" systems have been adopted partly on the grounds that they provide the appropriate cost estimates for certain decisions.

By financial reporting is meant, essentially, the construction of a profit and loss statement which provides information for management, stockholders, unions, and the government.

Control—as discussed in Chapter 1—is achieved in a large measure through the use of cost data; obviously, such a vital function occupies the accountant's attention. This need has given rise to the position of the controller who, however, is concerned with much more than "control" in the narrower sense.

"Control" is often applied specifically to cost where the problem is one of keeping costs at a minimum. To simplify, cost will be discussed as though it is given and is not "cuttable," although cutting costs is a major managerial function.

The role of cost data in government regulation is suggested in income tax reporting, but it is shown most clearly in instances of direct price regulation, particularly in the public-utility field. In this connection the important fact is that cost is what the regulating agency says it is, irrespective of what may seem logical and proper to management. The taxing authorities have the same effect. The marketing manager is more likely to encounter the use of cost data for government regulation in the "cost proving" required by the Robinson-Patman Act. According to the Act, differences among prices charged to different classes of customers are justifiable if based on differences in costs incurred in serving the customers. (For qualifications to this statement and for other methods of justifying price differentials, see Chapter 9.)

Finally, cost estimates are required for decision making as indicated in Chapter 2. The important point in this discussion of the four uses of cost data is that the "cost" required for each use is usually of a different magnitude. This is one of the major reasons for the ambiguity of "cost." With this background in the uses of cost data, it is hoped that the reader will be more cognizant of the compelling fact that a marketing executive should be thoroughly familiar with cost analysis; he better than anyone else knows the data he needs.

Criteria for Classifying Costs. For most marketing decisions, cost information must be assembled, or classified, on a particular basis. For example, if the decision is to choose between two marketing channels, the appropriate costs must be classified according to marketing channels in order to compare the alternative channels under consideration. The accountant sometimes uses the term "segments of the company" to describe these bases for classifying costs. Some of the most commonly used bases or criteria of classifying costs are product, geographic area, marketing channel, method of solicitation, delivery, individual salesmen or groups of salesmen, individual customers or groups of customers, and size of order. The decision to be made determines the appropriate criterion.

Criterion of Cost Relevancy. A Navy recruit is often beset with problems as to how he should behave; the often-stated principle is "If it moves, salute it; if it doesn't, paint it!" Similarly, in making a cost estimate for a particular marketing decision, one of the major problems encountered is deciding which cost items should be included and which should be omitted. Let us say that you, as the marketing manager, think that one of your products is unprofitable and should be dropped. You present this proposal to your top-management group, and they immediately ask, "Why?" You are then confronted with the need for compiling a defensible cost estimate. Obviously the first costs to be included are raw materials and labor directly used in producing the product. Then, less clear-cut items are encountered, and finally, such things as executive salaries must be considered. The question of what cost items should be included is, without exception, answered by the relevancy criterion—include only those cost items that will be affected by the decision.

The criterion of cost relevancy, which will be used throughout the following discussion, is emphasized because there has been considerable confusion about marketing costs. Teachers of marketing have often concerned themselves with various versions of "Does distribution cost too much (in a social-welfare sense)?" In their concern they have attempted to establish the two categories of "distribution costs" and "production costs," and to assign certain cost items on a permanent basis to one or the other of these categories. Accountants have attempted the same thing. For decision-making purposes these efforts are often beside the point, because a cost item relevant for one decision may not be relevant for another. The fact that in management practice no attempt is made to separate the two kinds of costs was revealed by a study in which it was concluded after an investigation of more than 100 companies that management had not found the distinction useful.[1]

Cost Concepts

The next task is to set forth those cost concepts that bring together the *accountant's view* of the problem and the *theory of cost,* and to focus both on *marketing decisions.* Also, a knowledge of the accounting terminology will enable the marketing executive to work more effectively with the accounting department. For the sake of brevity, however, some terminology found in the cost accounting literature will be omitted. The concepts appropriate for present purposes are summarized in Table 11.

TABLE 11
COST DISTINCTIONS

Concepts		Basis of Distinction
Outlay	Opportunity	Nature of the sacrifice
Future	Historical	Degree of anticipation
Short-run	Long-run	Degree of adaptation to present output
Variable	Fixed	Relation to output
Incremental	Marginal	Type of added activity
Traceable	Common	Traceability to a part of the company
Direct	Indirect	Traceability to different products

Outlay versus Opportunity Costs. Opportunity cost is a central concept in all cost analysis for decision making. Cost may be an actual expenditure (outlay cost), or it may be the price that the factor's service would command in the most productive alternative use (*opportunity cost*).[2] To use the productive services of anything for one purpose is to sacrifice the opportunity of using those services for other purposes. The cost of these services, then, is the most productive foregone opportunity. The opportunity-outlay distinction is of great practical importance, although sometimes its application is complex.

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[1] James W. Culliton, *The Management of Marketing Costs* (Boston: Graduate School of Business Administration, Harvard University, 1948), p. 10.

[2] George J. Stigler, *The Theory of Price* (rev. ed.; New York: The Macmillan Co., 1952), pp. 96–106.

The opportunity-outlay distinction applies in the use of limited factory facilities, for example, in a decision whether to eliminate a product from the product line when the factory is producing at capacity. In computing the cost of the product being considered for elimination, the executive should include an estimate of the profit that would result if these limited factory facilities were used in producing the most profitable alternative product. If the existing product still shows a contribution to profit after this inclusion, the product should be continued.

The opportunity-outlay distinction can also apply to parts or materials in computing costs of production. Often the materials were purchased when their prices were lower or they were obtained at a special bargain price. In either case their cost in producing the product should be their current price on the market rather than the actual cost outlay made by the company in purchasing them. The accountant employs the term "replacement cost."

Opportunity cost is always the appropriate concept. Outlay cost, however, often measures opportunity cost so that outlay cost can be used. The marketing executive should be on the alert to detect discrepancies between the two and to use estimates of opportunity cost when a discrepancy does arise.

Future versus Historical Costs. The distinction between future and historical costs is obvious but important, and often ignored in practice. Cost data provided by the conventional accounting department are only historical, yet a decision involves only future costs. Historical costs can be particularly misleading because they possess a subtle sense of rightness. Although experience may throw considerable light on the future, it is all too easy to assume that the past completely illuminates the future. Typically, the cost structure does not change quickly, but the items going into the structure may change suddenly. The wide fluctuations which occur in the price of such raw materials as zinc, copper, and tin offer good examples of why large differences in cost may occur over time. With new products, particularly, even the cost structure may change because as experience is gained in producing the item the cost will decline. In marketing a new product, the decisions will often be based upon the much lower cost that will be attained from both volume and experience rather than upon current costs.

Short-Run versus Long-Run Costs. Economic analysis sets forth three periods: "market," "short-run," and "long-run."[3] "Market" applies when the rate of output is constant; "short-run" applies when the scale of output (plant capacity) is constant but rate of output can be changed; and "long-run" applies when the scale of output (capacity) as well as the rate of output can be changed. These concepts of time serve as a guide for the marketing manager, steering him clear of the pitfalls created by the ambiguities of the term "cost." In this area, economic analysis has made one of its major contributions to management practice.

The period of time under consideration may affect the manner in which costs behave, as shown in cost theory and as portrayed graphically in Figures 29 and 30. Assume the graph in Figure 29 represents the facts from a manufacturing plant since cost theory has been developed in terms of production; the reader must temporarily adjust to thinking of production instead of sales. The curve labeled *LRAC* shows the average total cost per unit of product at various levels of output *when the scale of output is changed.* "Scale of output" means roughly the same thing as the executive means by "capacity."[4] The term "capacity," however, is ambiguous because production can almost always be increased somewhat, although the increase may bring lessened efficiency, or, stated differently, may bring rising costs.

Each *SRAC* (short-run average cost), Figure 29, represents a factory *with a given scale of output* and shows the total unit costs that would result from changing only the level of production. The curve *LRAC* is usually referred to as the "envelope curve" because it envelops all of the various possible plant sizes or capacities, each of which is represented by a "short-run" curve. The *LRAC* curve is made up of an infinite number of *SRAC* curves, and it shows the total unit costs at all possible scales of output over the range of production included in the graph. Thus, the term "economies of scale" applies to the behavior of total unit cost related to the scale of output—the envelope curve.

The distinction between "short run" and "long run" is essential to an understanding of cost theory. As indicated, short run refers to a period of time that permits adjustments in the rate of production only, whereas long run refers to a period of time long enough to adjust the scale of output as well. The distinction should not be confused with the calendar-time distinction of "short term" and "long term" that was used in the discussion of demand analysis, where we were forced to adopt a convention from business practice. Economic theory does not provide a meaningful concept of time on the demand side.[5]

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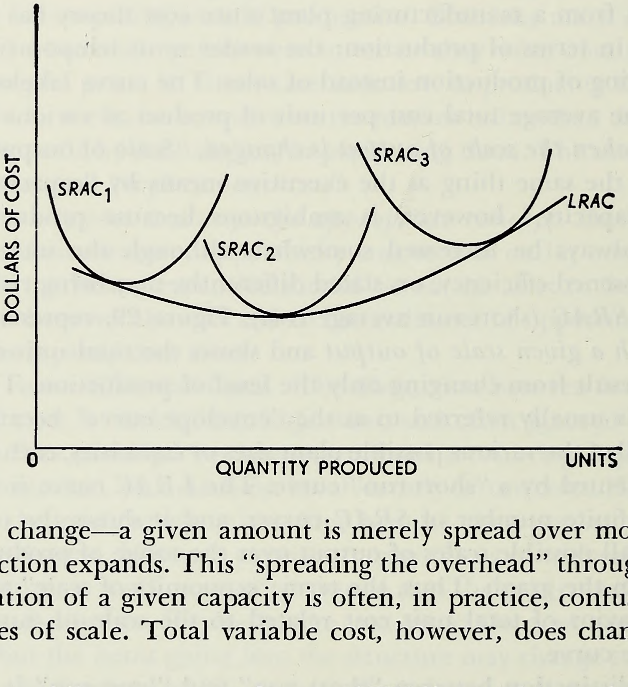
[3] Alfred Marshall, *Principles of Economics* (8th ed.; London: Macmillan & Co., Ltd., 1930), pp. 363–80.

[4] Stigler, *op. cit.*, chaps. vii and viii.

Let us examine the "short-run average total cost" curves of Figure 29 more carefully. One of the curves is reproduced in Figure 30 where it can be seen that short-run average total cost, labeled *ATUC* (average total unit cost), is the sum of the "average fixed cost" (*AFC*) and the "average variable cost" (*AVC*) at various levels of output. Although *AFC* varies with the rate of production, the total fixed cost does not change—a given amount is merely spread over more units as production expands. This "spreading the overhead" through greater utilization of a given capacity is often, in practice, confused with economies of scale. Total variable cost, however, does change with output.

FIGURE 29

LONG- AND SHORT-RUN AVERAGE COST CURVES



Finally, while *average* total cost (ATUC) pertains to the cost of producing *each unit* of a given output, "total cost" means the cost of producing *all the units* of a given output. The change in total cost that results from producing an additional unit is called the "marginal cost" (*MC*). Mathematically, marginal cost is the first derivative of the total cost.

Marginal cost is the key to an understanding of the profit-maximizing principle. Table 12 illustrates how these costs, particularly marginal cost, are computed. The reader should work through the table carefully to insure that he comprehends the essential cost concept. The average fixed cost and average variable cost can be computed by dividing each figure in Columns 2 and 3 by the appropriate quantity figure from Column 1. The reader should carefully note in Column 5 that marginal cost is the *change* in *total cost* that results from an additional unit of production.

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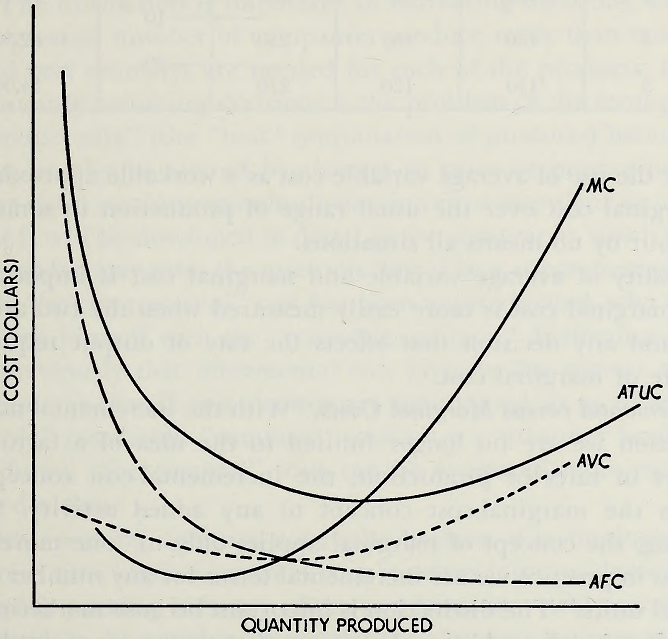
[5] See, however, Marshall, *op. cit.*

FIGURE 30

Marginal and Average Cost Curves for a Given Plant



Variable versus Fixed Costs. The dichotomy of variable costs and fixed costs conforms precisely to the short-run fixed and variable distinction of cost theory where the variation is a consequence of changes in the *rate of output.* The fixed costs are constant in total, but when divided by the number of units, and thus expressed as averages, they vary inversely with output.

Limited empirical evidence suggests that average variable cost may sometimes be roughly equal to the marginal cost of cost theory within narrow ranges of the level of output. Later, an example will be presented to support this observation. The evidence is strong enough to

TABLE 12

SHORT-RUN COST RELATIONSHIPS

Quantity (1)	Fixed Cost FC (2)	Variable Cost VC (3)	Total Cost TC (4)	Marginal Cost per Unit MC (5)	Average Total Cost per Unit ATUC (6)
0	150	0	150		Infinity
				50	
1	150	50	200		200.00
				25	
2	150	75	225		112.50
				15	
3	150	90	240		80.00
				10	
4	150	100	250		62.50
				20	
5	150	120	270		54.00

suggest the use of average variable cost as a workable approximation of marginal cost over the usual range of production in some situations, but by no means all situations.

Equality of average variable and marginal cost is important because marginal cost is more easily measured when the two are identical, and any decision that affects the rate of output requires an estimate of marginal cost.

Incremental versus Marginal Costs. With the incremental-marginal distinction we are no longer limited to the idea of a factory and changes in rates of production; the incremental-cost concept generalizes the marginal-cost concept to any added activity. Strictly speaking, the concept of marginal applies only to "one more unit," whereas in practice we use incremental terms for any number of "additional units." The distinction is important because marketing decisions often involve additional activity other than rates of production. A company with a sales force must decide how to allocate the salesmen geographically. In making the decision, the marketing manager should have an estimate of the incremental cost of *adding sales effort* to each territory in order to compare it with the additional (incremental) revenue that will accrue as a result of the additional sales effort.

The incremental-cost concept should not be applied blindly however, because some marketing decisions, particularly those pertaining to products and marketing channels, imply long-run commitments. Costs ordinarily classified as "fixed" become "incremental" because of the longer period involved. The decision to expand a marketing organization by adding a direct sales force will obligate a portion of the marketing manager's time for as long as direct selling is continued, since he cannot avoid devoting some of his attention to directing and evaluating the force. A correct estimate of the incremental cost required for the decision would include some portion of the marketing manager's time, and it would require an approximation of opportunity cost.

Traceable versus Common Costs. A traceable cost is one that can be identified, *as a practical matter,* with a part or segment of the company; this "part" may be anything, such as a product, department, or plant. The distinction is important in marketing decisions, since by far the greatest number of companies produce more than one product, and cost estimates are needed for each of the products. One of the constantly recurring decisions is the problem of the most profitable "product mix" (the "best" combination of products) because the mix can usually be altered by changes in price or promotion. The need for the traceable-common distinction is so prevalent in marketing that it will be developed in detail in the paragraphs which follow.

The reader may raise the question that if in a concrete marketing problem the "incremental" cost has been approximated, why should he concern himself with the "traceable-common" distinction. It was stated previously that incremental cost gives us the correct answer. The reason is that if cost records are maintained so as to separate "traceable" costs from "common" costs on *a continuing basis,* (e.g., by products), "incremental" costs can be estimated more easily for various decisions.

Strictly speaking, common costs arise because of technological reasons alone. One kind of common costs involves joint products such as in the pork packing industry where two hams inevitably accompany two shoulders. In practice, common costs also arise because the company accounting system throws together many costs in the process of classifying costs for financial reporting purposes. In the development of a product unit cost, accounting practice allocates all unallocated costs, or overheads" as they are often called. When such cost data are used in making decisions, they can lead to serious errors in the profit estimates of marketing alternatives. The accountant typically prepares "a historical, fully allocated, average unit cost" which has essentially three constituent parts: (1) traceable costs, (2) variable common costs, and (3) fixed common costs. The practical problem, then, in estimating the cost of an individual product in a multiproduct company is to determine the "correct" allocation of the *variable common costs.* Traceable costs pose no problem, and fixed common costs do not vary with the decision.

Under certain conditions the conventional accounting practice of full allocation can lead to serious errors, but in other instances it is not too damaging. If a large proportion of the costs are traceable, and these costs are also variable in the short run, then overheads are small and conventional accounting practice will yield a rough workable approximation to the average variable cost of theory. When overhead costs are large and partly fixed in relation to output, cost estimates that have been derived through full allocation are not at all satisfactory, and decisions based upon them may not at all tend to maximize profits.

Three possible situations are encountered in estimating the costs of an individual product: (1) the products are related in a situation of what is termed "joint products"—an increase in the production of one causes an increase in the production of one or more other products; (2) the relationship is one of "alternative products"—an increase in the production of one is necessarily accompanied by a decrease in the quantity of the related product; or (3) the products are not related—the quantity of Product A has no influence upon the quantities of Products B, C, etc.

Joint products are illustrated in the production of iron where slag inevitably accompanies iron. If one product is much more important than the other in the sense of contributing greater profit, the less important product is called a "by-product"; however, in time the two products often have their positions reversed. In the joint-product situation, there is no logically satisfactory method of estimating the cost of the individual products; the costs are said to be indeterminate.

Alternative products typically arise because of limited production facilities or other limited inputs, such as materials or labor. The concept of opportunity cost is usually appropriate in estimating the costs of individual products because the major cost is the foregone opportunity to produce the alternative product.

Finally, unrelated products perhaps are the most common. The cost of each unrelated product can be determined, in principle, by systematically varying both the total volume of production (all products taken together) and the proportions of the various products making up the product line. In the ordinary production situation, however, the variation in production is not great enough to reveal the cost information. The conditions under which the principle can be used will be illustrated in Example III later in this chapter.

A common, practical solution to the problem of estimating costs of an individual product is to isolate the common variable costs as a total by the regression analysis method, as explained in Chapter 5, and then to allocate these costs to individual products by using some approximate measuring method. A number of methods can be used to allocate the common variable costs. First, if there is a traceable cost item which in total is highly correlated with either total output or the variable common costs to be allocated, this item can be used as the basis of allocation. An example might be materials. The method provides a workable, close approximation to the incremental cost of each product. Second, the relative size of total traceable costs of each product can be used as the basis of allocation. Third, a method which is more consistent with conventional accounting practice is the separate allocation of each variable common cost item according to the traceable cost item that appears to be most closely related. "Electric power might be allocated on the basis of machine hours, inventory expenses on the basis of direct materials, and indirect labor on the basis of direct labor."[6]

Direct versus Indirect Costs. The distinction between direct and indirect costs is used by the accountant as one application of the traceable-common distinction. Direct costs are those that can be traced to a particular product; the method of tracing is usually inspection and judgment. Through direct costing, the traceable-common distinction *with respect to products* has been incorporated into many company accounting systems.

Cost Measurement

Three examples are set forth in order to attain concretely the goal of focusing the accountant's tools and cost analysis from economics upon marketing decisions. The preceding discussion has necessarily been general in nature and somewhat elusive. One of the marketing manager's major obstacles in using cost estimates is the way in which accounting systems are constructed and the way in which accountants typically view the problem.[7] The first example is presented in order to contrast the two accounting views. The second deals with a more conventional marketing problem—the use of cost data in selecting among marketing channels. The third example, a food processing company, is an "ideal" case representing somewhat atypical conditions; however, it illustrates the use of statistical analysis in measuring costs. These examples will aid in bridging the gap between economic analysis, the accounting department's information, and the marketing manager's needs.

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[6] Joel Dean, *Managerial Economics* (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1951), p. 321.

[7] Edgar O. Edwards and Philip W. Bell, *The Theory and Measurement of Business Income* (Berkeley: University of California Press, 1961); and Palle Hansen, *The Accounting Concept of Profit* (Copenhagen, Denmark: Einar Harcks, 1962). For a most helpful discussion of measuring cost, see J. Johnston, *Statistical Cost Analysis* (New York: McGraw-Hill Book Co., Inc., 1960).

Conventional Accounting Methods Contrasted—Example I.[8] Example I, which contrasts the two basic accounting approaches, illustrates some of the principles of cost analysis. Also, it points up the problems in terminology which a marketing manager may face when he attempts to work with cost data from his accounting department. The two approaches are described as the net-profit method and the contribution-to-profit method. Table 13 contains the data from a company's annual operating statement. The upper portion of the

TABLE 13

NET PROFIT VERSUS CONTRIBUTION TO PROFIT

	Total $	Product A $	Product B $	Product C $	Product D $
1. Net sales	1,000,000	300,000	200,000	100,000	400,000
2. Less variable cost of sales	580,000	120,000	155,000	45,000	260,000
3. Manufacturing margin	420,000	180,000	45,000	55,000	140,000
4. Less variable selling and advertising expenses	120,000	60,000	15,000	25,000	20,000
5. Merchandising margin	300,000	120,000	30,000	30,000	120,000
6. Less fixed expenses					
7. Manufacturing					
8. Direct	20,000	20,000			
9. Allocated per Schedule A	50,000	20,000	5,000	10,000	15,000
10. Selling and advertising					
11. Direct	20,000				20,000
12. Allocated per Schedule B	50,000	25,000	12,500	12,500	
13. Administrative					
Allocated per Schedule C	80,000	25,000	10,000	10,000	35,000
14. Total Fixed Costs	220,000	90,000	27,500	32,500	70,000
15. Operating Income	80,000	30,000	2,500	(2,500)*	50,000

* Loss.

Source: Adapted from "Assignment of Non-Manufacturing Costs for Managerial Decisions," in National Association of Cost Accountants *N.A.C.A. Bulletin,* XXXII (1950–51), 1169.

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[8] Adapted from "Assignment of Non-Manufacturing Costs for Managerial Decisions," in National Association of Cost Accountants *N.A.C.A. Bulletin,* XXXII (1950–51), 1135–73.

table represents the contribution-to-profit approach in which only direct costs are assigned to each product. In the net-profit approach, shown in the lower half of Table 13, all costs are allocated even though this must obviously be done on an arbitrary basis.

Variable cost of sales (line 2) is the direct proportion of manufacturing costs, and variable selling and advertising expenses (line 4) are likewise direct. You will recall from the earlier discussion that "direct" is an accounting concept in which traceable costs are assigned to each product by a process of inspection and judgment.

The item "direct" (line 8) is the portion of manufacturing fixed expenses (line 7) which are the variable common costs. For market-product, the correct practice is to separate out of the $20,000 of total direct costs the amount that varies with the production of each product, assign this to the appropriate product, and ignore the rest of the $20,000 figure. This practice would be valid unless an estimate of the variable cost of total production were needed (all four products taken together), in which case the entire $20,000 would probably be included. If the $20,000 corresponded to our "fixed" concept, however, then it would of course be ignored.

The same analysis applies to the direct proportion of selling and advertising (line 11).

As an example of the consequences of these accounting approaches let us say that the management of this company is faced with the decision to drop one of the products. This situation could arise when a company unable to secure adequate capital to expand is confronted with a growing demand for its products. Product C is clearly the candidate if the net-profit approach is used, since the product has been yielding an annual loss of $2,500. This is true, however, only because someone arbitrarily said that $32,500 of total fixed costs (line 14) should be allocated to Product C. In the absence of other evidence, the correct answer, which can be obtained only through the contribution-to-profit approach, is a "toss-up" between Products B and C (line 5).

In summary, the net-profit approach is designed to serve the needs of financial reporting, but typically it is not useful for decision making. Contribution to profit, or marginal income, is the appropriate concept for decision.

Cost Estimates and a Marketing Decision—Example II.[9] Example

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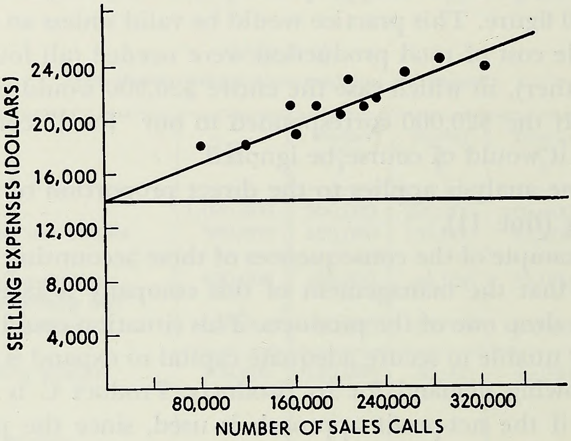
[9] Adapted from Charles H. Sevin, *How Manufacturers Reduce Their Distribution Costs,* Economic Series No. 72, Department of Commerce (Washington, D.C.: U.S. Government Printing Office, 1948).

II, which illustrates the use of cost estimates in making a marketing decision, is taken from an actual company experience. The marketing manager in this company doubted the profitability of one of the company's four marketing channels. Though he had his vague suspicions, there was no concrete evidence to support or refute them. The problem that he faced was to determine the profit contribution of each of the four channels, which required that estimates of revenue and cost be made for each channel. The task was simplified because no significant changes had occurred in costs or prices and no changes were anticipated; therefore, it was hoped that historical data could be projected into the future with confidence. Estimates of revenue for each channel were easy to make because (1) the same product was sold to the four channels and (2) the price was the same among the channels.

FIGURE 31

RELATION BETWEEN NUMBER OF SALES CALLS AND SELLING EXPENSE

(Formula: $14,000 Fixed per Month + $3.00 per 100 Sales Calls)



Source: Adapted from Charles H. Sevin, *How Manufacturers Reduce Their Distribution Costs*, Economic Series No. 72, Department of Commerce (Washington, D.C.: U.S. Government Printing Office, 1948), p. 44.

The application of the "criterion of relevancy" of costs to a decision mentioned early in this chapter required two steps: (1) determination of the proportion of total distribution costs that were variable; and (2) the allocation of the variable proportion of these total distribution costs among the four channels.

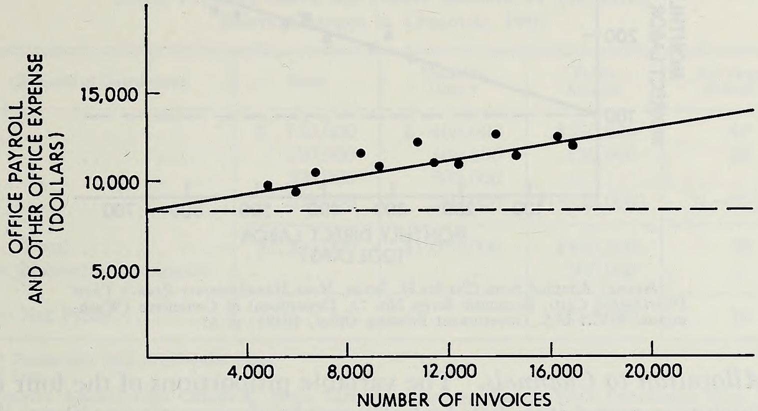
Total Variable Distribution Costs. There were four distribution expenses: selling, office, warehousing and shipping, and delivery.

Each was analyzed to determine its proportion of variable costs. Monthly data for the past year were used, and it was assumed that the accounting data did not contain arbitrary allocations of costs. Figures 31 and 32 show the analysis of selling and office expenses, respectively. For example, in Figure 31 the total selling expense for each month was plotted as indicated and a freehand line was drawn through the points. This line intersected the vertical axis at $14,000, and the slope of the line was such as to yield the variable cost of $3.00 per hundred sales calls, as indicated.

FIGURE 32

RELATION BETWEEN NUMBER OF INVOICES AND OFFICE PAYROLL AND OTHER OFFICE EXPENSE

(Formula: $8,750 Fixed per Month + $208 per 1,000 Invoices)



Source: Adapted from Charles H. Sevin, *How Manufacturers Reduce Their Distribution Costs,* Economic Series No. 72, Department of Commerce (Washington, D.C.: U.S. Government Printing Office, 1948), p. 44.

The same graphic regression analysis was applied to each of the expense accounts. As Figures 31 and 32 suggest, the variable proportion of selling expense was $3.00 per hundred sales calls, and that of the office expense was $208 per thousand invoices.

In summary, each of the four distribution expense accounts was analyzed on the following bases:

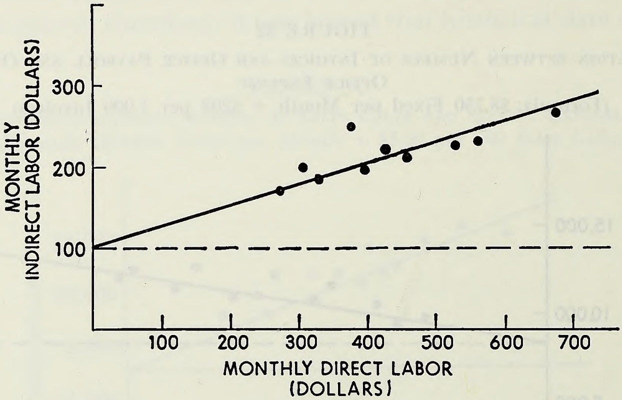
Selling expense	Number of sales calls
Office expense	Number of invoices
Warehousing and shipping expense	Number of cases handled
Delivery expense	Number of deliveries

The final task in this first step was to make an estimate of unit production costs because sales varied among the four channels. Labor constituted by far the major proportion of production costs, however, and clearly the direct labor proportion of labor would vary with different volumes of production. Since it was suspected that a proportion of indirect labor also varied with volume, the analysis shown in Figure 33 was carried out.

FIGURE 33

Relation between Direct and Indirect Production Labor Cost

(Formula: $100 Fixed + 27.3 Per Cent Direct Labor per Month)



Source: Adapted from Charles H. Sevin, *How Manufacturers Reduce Their Distribution Costs,* Economic Series No. 72, Department of Commerce (Washington, D.C.: U.S. Government Printing Office, 1948), p. 45.

Allocation to Channels. The variable proportions of the four distribution expense items and of the production cost were then allocated to each channel by merely multiplying the unit variable cost in each channel by the number of units appropriate to that channel. Selling expense was allocated to Channel A, for example, by multiplying the number of sales calls that had been made in Channel A during the year by $0.03.

The cost estimates were then summed and brought together with the revenue estimates to yield the data summarized in Table 14.

According to the analysis, the customers in Channels A and B are making a contribution to profit, although the company is merely "breaking even" on customers in C and is losing $50,000 annually on customers in D. A decision must be made: first, should Channel D be dropped? Clearly, unless something can be done to increase the profitability of the customers, the company would increase its profit by eliminating them, even though the decrease in sales will create excess capacity both in plant and personnel. Also, it is conceivable that dropping one product may damage or increase the sales of other products, but in this case the sales in one channel had no effect upon the sales in other channels. After a careful examination of the customers in Channel D, it was concluded that nothing could be done to increase their profitability to the company. Top management was opposed, however, to creating unemployment because of its long-term effect on labor relations—a consideration not included in the cost analysis.

The picture of Channel C as shown in Table 14 was not satisfactory even though according to the analysis the company was "breaking even." The marketing manager was fully aware that the method used for separating variable costs gave only crude answers. The elimination of Channel C, for example, would relieve him of certain supervisory activities which were a very real cost and yet not included in the estimates. Fortunately, analysis of the customers in Channel C revealed that, if the low-volume customers were eliminated, the profit contribution of Channel C would increase considerably.

TABLE 14

SALES, VARIABLE COSTS, AND PROFIT MARGINS BY CHANNELS

Before Changes in Channels, 1946

Channels of Distribution	Sales	Variable Costs*	Profit Margin	Per Cent of Sales
A	$ 750,000	$ 400,000	$350,000	47
B	250,000	100,000	150,000	60
C	300,000	300,000	....	....
D	200,000	250,000	†(−50,000)	†(−25)
Total	$1,500,000	$1,050,000	$450,000	30
Less: Nonvariable expense	....	....	300,000	....
Net Profit	....	....	$150,000	10

* Production plus distribution costs.

† Loss.

Source: Adapted from Charles E. Sevin, *How Manufacturers Reduce Their Distribution Costs,* Economic Series No. 72, Department of Commerce (Washington, D.C.: U.S. Government Printing Office, 1948), p. 46.

There was still the unemployment problem which would be further aggravated by dropping some of the customers from Channel C. Examination of the customers in Channels A and B suggested that, if the promotional effort were increased, enough additional sales could be attained to compensate for the customers dropped as a result of eliminating D and some of the customers in C. This was done, and the following year's results are shown in Table 15. The improved profit position, however, is by no means conclusive evidence of the soundness of the decision. Profit is the consequence of many forces.

TABLE 15

SALES, VARIABLE COSTS, AND PROFIT MARGINS BY CHANNELS
After Changes in Channels, 1947

Channels of Distribution	Sales	Variable Costs*	Profit Margin	Per Cent of Sales
A	$ 825,000	$415,000	$410,000	50
B	315,000	130,000	185,000	59
C	120,000	110,000	10,000	8
Total	$1,260,000	$655,000	$605,000	48
Less: Nonvariable expense			310,000	
Net Profit			$295,000	23

* Production plus distribution costs.

Source: Adapted from Charles H. Sevin, *How Manufacturers Reduce Their Distribution Costs,* Economic Series No. 72, Department of Commerce (Washington, D.C.: U.S. Government Printing Office, 1948), p. 46.

The Statistical Analysis of Cost: An Ideal Case—Example III.[10] This analysis of cost of a middle-sized food processing firm illustrates the application of cost theory by means of statistical analysis applied to accounting data in order to arrive at a cost estimate required for a marketing decision.

One of the cost concepts commonly needed in marketing decisions is incremental cost (the marginal cost of cost theory) where the variation is in the rate of output. The decision whether to increase advertising depends in part on what the incremental cost will be at the new level of sales. Usually, price and product decision also require an estimate of this concept.

Marginal costs in a multiproduct company can be estimated by means of statistical regression analysis under the ideal conditions where in a short period there is sufficient variation in both the proportions of products manufactured and the aggregate output. These ideal conditions existed in the food processing company as a result of the normal week-to-week seasonal fluctuations in both the volume of sales for each product and the total sales volume. Since such fluctuations occur less frequently in most companies, a longer period of time is required for an adequate number of observations. With the longer period, other changes may enter and confuse the cost-output relationship, which serves to limit the use of the statistical regression analysis method. The cost data were adjusted for changes in the prices of raw materials because these fluctuated over the period under study.

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[10] Anyone interested in the statistical methodology involved in this analysis should refer to the original source, J. Johnston: "Cost-Output Variations in a Multiple Product Firm," *The Manchester School of Economic and Social Studies,* XXI (1953), 140–53.

The company's accounting system was a good one because it yielded weekly data on the physical production of each product and total direct costs data for each product subdivided according to the four cost categories of materials, labor, packing, and freight. The question may be raised, why was it necessary to go to the trouble of applying statistical analysis if the accounting system gave these data? The answer is that the direct costs are developed in the accounting department according to their traceability, and traceability is determined by inspection and judgment; therefore, traceable costs may contain elements of fixed costs and omit elements of incremental cost.

On the graphs in Figure 34 the dots represent weekly data. A linear function was fitted statistically to these weekly data for each product. Only three of the products are shown in Figure 34, but the equations for all 14 products are presented in Table 16. Y indicates total deflated direct cost, while X indicates output.

TABLE 16

STATISTICAL ANALYSES FOR SEPARATE PRODUCTS

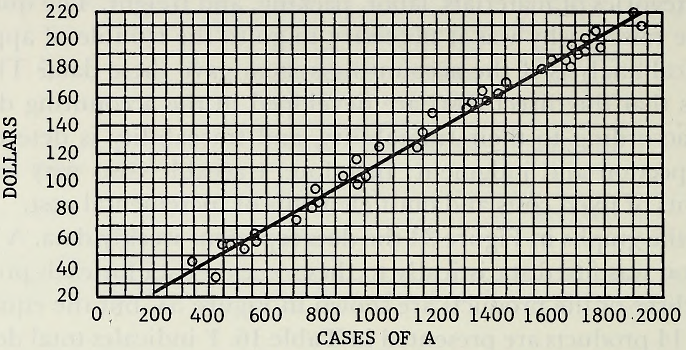
Product (1)	No. of Weeks (2)	$Y=$ (3)	a (4)	bX (5)
A	37	$Y=$	3.5	$+0.1115X$
B	37	$Y=$	−5.9	$+0.1620X$
C	36	$Y=$	181.6	$+4.9293X$
D	29	$Y=$	4.7	$+0.4165X$
E	24	$Y=$	16.9	$+3.6432X$
F	14	$Y=$	13.8	$+3.4448X$
G	7	$Y=$	72.2	$+4.0384X$
H	18	$Y=$	−31.5	$+5.4472X$
I	14	$Y=$	−90.6	$+5.0368X$
J	20	$Y=$	8.4	$+0.1192X$
K	17	$Y=$	−0.7	$+0.0920X$
L	16	$Y=$	−16.2	$+0.9687X$
M	20	$Y=$	168.1	$+1.5711X$
N	9	$Y=$	1.2	$+0.1111X$

Source: Adapted from J. Johnston, "Cost-Output Variations in a Multiple Product Firm," *Manchester School of Economic and Social Studies,* XXI (1953), 143.

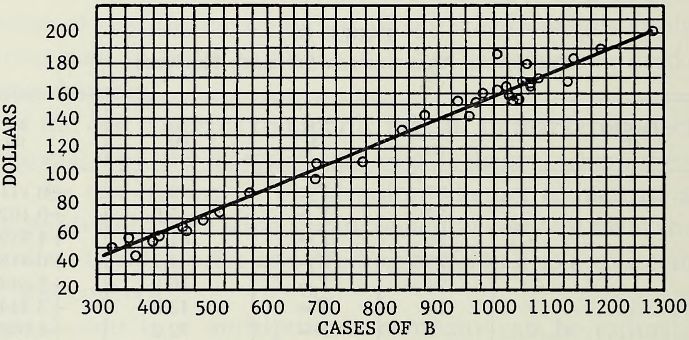
It is clear from the graphs of Products A, B, and C that a linear relation provides a good fit. The graph shows the total variable cost relation; since it is a straight line, average variable cost does not change with output. Although average variable cost is not shown here, it can easily be derived merely by dividing total variable cost by the number of physical units at any level of output. In this case, it can be concluded that marginal (incremental) cost and average variable cost are identical because a constant average variable cost indicates

FIGURE 34
Cost-Output Relationships

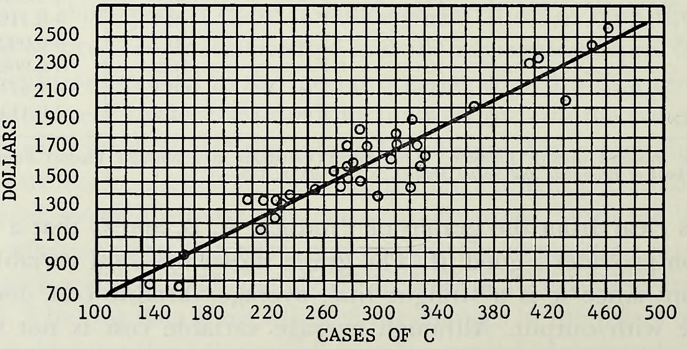
PRODUCT A



PRODUCT B



PRODUCT C



Source: J. Johnston, "Cost-Output Variations in a Multiple Product Firm," *Manchester School of Economic and Social Studies,* XXI (1953), 145.

that the increments to total cost are constant. This provides additional evidence to that found in other statistical cost studies that average variable cost may often be used as an estimate of marginal cost.

Although in this instance only direct costs were used in the analysis, total costs (direct plus indirect) could have been used as well. The element of indirect cost is shown by the *Y*-intercept when total costs are used. For example, let us refer to Figure 35. In Graphs B and C, the *Y*-intercept is shown by the level of the total fixed cost. In Figure 34 the regression line passes either through or close to the origin for each of Products A, B, and C. This tendency for the *Y*-intercept to be close to the origin suggests that the accounting system of the company closely approximated the "variable" and "fixed" cost of theory in classifying its accounts as either "direct" or "indirect." Also, it suggests that there are no variable common costs, or put another way, that all variable costs in this company are traceable to a product. A negative value for the *Y*-intercept would imply that not all elements of variable cost were included in the "direct cost," thus the value of the *Y*-intercept can serve as a criterion of whether the accountant's "direct cost" in a particular case can be used for decision making. The limitation of the criterion is usually that, in practice, no observations will be close to the origin; therefore, the regression line must be extrapolated beyond the range of observations, which is always an exceedingly risky procedure.

SHORT-RUN OPTIMIZING

The task now is to bring together cost analysis, contribution to profit (Chapter 2), demand relations (Chapters 3, 4, and 5), and competitive relations (Chapter 6) to provide a set of principles for opitimizing short-run decisions. By short-run decisions is meant decisions in which some costs do not change, and thus, for the purposes of this particular decision, the unchanging costs are fixed: the fixed-variable distinction becomes a central concept in the decision. The short-run, average-cost curve and its related marginal cost (*MC*) from Figure 30 are reproduced in Graph A of Figure 35. The average variable cost and the average fixed cost have been omitted for the sake of clarity. It should be remembered, however, that marginal cost is related only to variable cost; therefore, marginal cost is related to total cost only insofar as total cost is determined by variable cost. The other component of total cost, which is fixed cost, is not affected by changes in the rate of output.

The company price-sales relation presented in Chapter 4 is added in Graph A and labeled *AR* for "average revenue" or price. It will be recalled that *AR* is the sum of the response curves of individual buyers—how buyers individually respond to different prices. Underlying the response curves are the psychological and sociological mechanisms that were discussed in Chapters 3 and 4. It is the task of short-term forecasting described in Chapter 5 to provide information about the *position* of the demand relations and the task of market research combined with the buyer behavior model to provide information about the *shape* of the relations.

From Chapter 6 it is known that *AR* also depends upon the behavior of the company's competitors. For the sake of simplicity, assume that the company is an effective price leader in the industry, and thus any price change by this company will be followed immediately by all competitors.

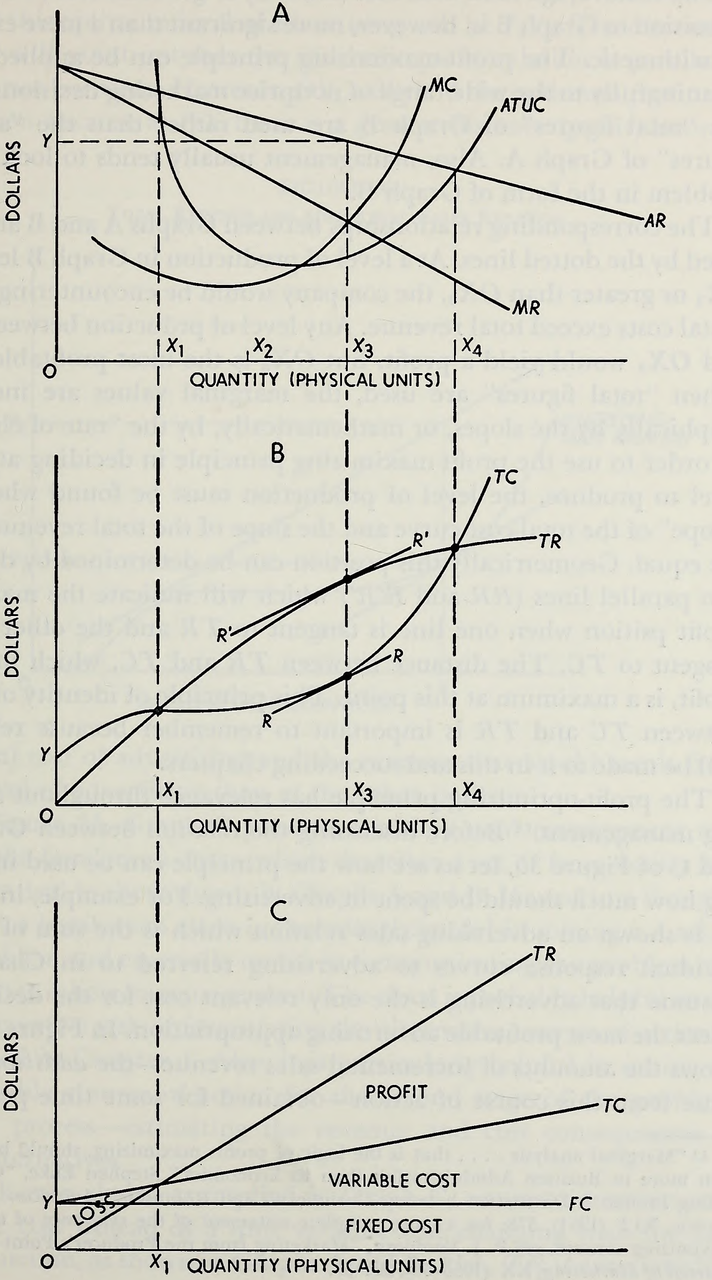
The line labeled *MR* is "marginal revenue," and it is the counterpart of marginal cost illustrated in Table 12. Marginal revenue is the change in total revenue divided by the corresponding change in units sold. *MR* falls faster than *AR* because in order to sell the additional unit the price must be lowered. Thus, the return from each unit is decreased as a result of selling the one additional unit; therefore, the addition to total revenue from selling that additional unit is less than the price of that unit. The physical quantities of production and sales are assumed to be equal; there is no finished-goods inventory.

The most profitable operating position for the company is at that level of production where marginal revenue is equal to marginal cost. Thus, profits are maximized when marginal revenue equals marginal cost. For example, if the company portrayed by Graph A of Figure 35 was producing at a level of OX_2, it could increase its profit by expanding production, because at OX_2 marginal cost is less than marginal revenue. The additional units would add less to total cost than the additional sales would add to total revenue. Profit could be improved by lowering price and by increasing sales and production up to OX_3. Beyond OX_3, marginal cost is greater than marginal revenue—additional units will add more to total cost than they will add to total revenue. Finally, if production is expanded beyond OX_4, the company will be operating at a loss. Any level of production between OX_1 and OX_4 is profitable, but OX_3 is the most profitable. To illustrate the application of the profit-maximizing principle, the level of production is set so that marginal cost equals marginal revenue. This strategy is termed *the short-run optimizing principle.*

Graph B represents the identical situation described in Graph A

FIGURE 35

Relationships between Unit Cost–Unit Revenue, Total Cost–Total Revenue, and Break–Even Chart



of Figure 35. In Graph B, however, the facts are shown in total figures, which can be obtained from Graph A by multiplying the quantity at each level of prduction by the price (*AR*) to get total revenue (*TR*), and by the average total unit cost (*ATUC*) to get total cost (*TC*). The transition to Graph B is, however, more significant than a mere exercise in arithmetic. The profit-maximizing principle can be applied more meaningfully to the wide range of nonprice marketing decisions when the "total figures" of Graph B are used rather than the "average figures" of Graph A. Also, management usually tends to look at the problem in the form of Graph B.

The corresponding relationships between Graphs A and B are indicated by the dotted lines. At a level of production in Graph B less than OX_1 or greater than OX_4, the company would be encountering losses. Total costs exceed total revenue. Any level of prduction between OX_1 and OX_4 would yield a profit, but OX_3 is the most profitable level. When "total figures" are used, the marginal values are indicated graphically by the slopes, or mathematically, by the "rate of change." In order to use the profit-maximizing principle in deciding at which level to produce, the level of production must be found where the "slope" of the total-cost curve and the slope of the total-revenue curve are equal. Geometrically this position can be determined by drawing two parallel lines (*RR* and *R′R′*) which will indicate the maximum profit psition when one line is tangent to *TR* and the other line is tangent to *TC*. The distance between *TR* and *TC*, which indicates profit, is a maximum at this point. This principle of identity of slopes between *TC* and *TR* is important to remember because reference will be made to it in this and succeeding chapters.

The profit-optimizing principle has relevance throughout marketing management.[11] Before discussing the relation between Graphs B and C of Figure 35, let us see how the principle can be used in deciding how much should be spent in advertising. For example, in Figure 36 is shown an advertising-sales relation which is the sum of the individual response curves to advertising referred to in Chapter 3. Assume that advertising is the only relevant cost for the decision to select the most profitable advertising appropriation. In Figure 36, *TR* shows the amounts of incremental sales revenue—the *additional* revenue from this course of action—obtained for some time period by varying advertising and keeping price and all other determinants of sales constant. A line, *RR*, drawn parallel to *TR* and tangent to the advertising-sales relation indicates the optimum amount of advertising to use; this amount will bring *OX* in sales, and the profit contribution at this optimum level of advertising will be Y_1Y_2. The discerning reader will point out that the advertising-sales relation is parallel to *TR* at two positions. However, OY_1 will yield the optimum profit contribution because at *OX* there is a greater distance (profit) between the total cost of advertising and the revenue that would result from that level of advertising than at the other position.

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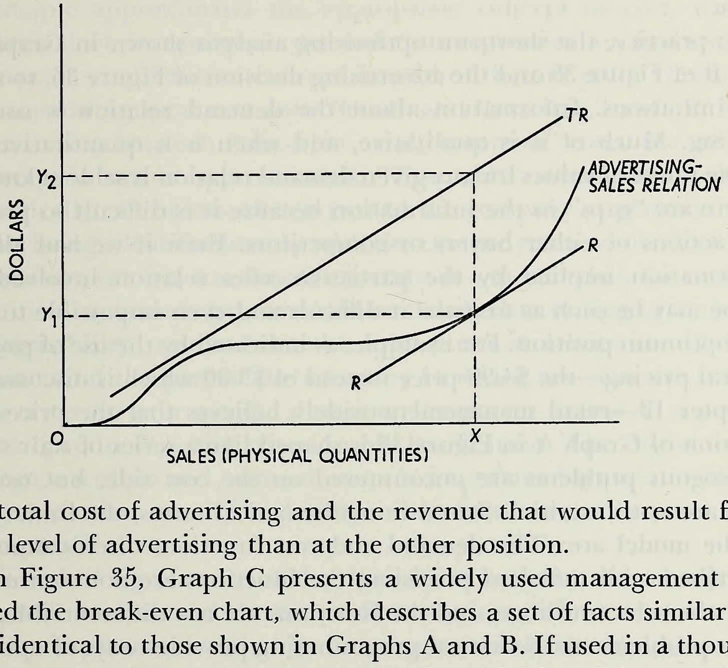
[11] "Marginal analysis . . . , that is the logic of profits maximizing, should be stressed even more in Business Administration than in Economics." Stephen Enke, "On Maximizing Profits: A Distinction between Chamberlin and Robinson," *American Economic Review,* XLI (1951), 578; for a more complete statement of the relevance of the profit-maximizing concept, see P. J. Verdoorn, "Marketing from the Producer's Point of View," *Journal of Marketing,* XX (1955–56), 221–35.

FIGURE 36

Total Revenue and Advertising–Sales Relation



In Figure 35, Graph C presents a widely used management tool called the break-even chart, which describes a set of facts similar but not identical to those shown in Graphs A and B. If used in a thoughtful way, a break-even chart is exceedingly useful in solving a marketing problem and especially useful in communicating the problem and solution to others in management. The chart is probably helpful in the highly creative task of formulating the alternative courses of action as described in Chapter 1. Also, it is particularly helpful in setting up the feasible courses of action for the second stage of the problem-solving process—estimating the revenue and cost consequences of these alternatives.

Break-even charts, as implied in Graph C, assume a constant unit variable cost instead of a unit variable cost changing with the rate of production, as shown in Graphs A and B. Also, *TR* is a straight line drawn under the assumption that price does not change with the rate of production or sale. The fixed cost is *FC*; the difference between *FC* and *TC* is the variable cost. The "break-even" point is the intersection of *TR* and *TC*; rates of production to the right of this will be profitable, and those to the left will result in a loss. Thus, the break-even chart defines profit as *net profit* instead of *contribution to profit* since *TC* includes both fixed cost and variable cost; only variable cost is affected by the decision, and therefore, it alone is relevant. Moreover, the straight-line relations do not indicate *the* most profitable position. The break-even chart, therefore, has serious limitations for the third stage of the decision process—choosing among alternatives.

In practice, the short-run optimizing analysis shown in Graphs A and B of Figure 35 and the advertising decision of Figure 36, too, has its limitations. Information about the demand relation is usually lacking. Much of it is qualitative, and when it is quantitative the whole range of values for any given demand relation is seldom known. There are "gaps" in the information because it is difficult to predict the actions of either buyers or competitors. Even if we had all the information implied by the particular sales relation involved, its shape may be such as to make it difficult and even impossible to find the optimum position. For example, as indicated by the use of psychological pricing—the $4.99 price instead of $5.00 which is discussed in Chapter 12—retail management widely believes that the price-sales relation of Graph A in Figure 35 is shaped like a series of stair steps. Analogous problems are encountered on the cost side, but usually they are not so serious. Stated in mathematical terms, the limitations of the model are: The demand and cost functions often cannot be described with sufficient precision, the functions are not continuous over the relevant range, and the functions are not differentiable. For some problems mathematical programming provides ways of optimizing marketing decisions. For example, considerable effort has been directed toward applying programming techniques to the allocation of advertising funds to media; the greatest contribution of this effort to date perhaps has been to show that optimal decisions could be made if we had data about the appropriate demand relations, data which are not now available. This contribution is important because it sharpens our search for the relevant data.

A simple method of analysis, however, which is a modification of both the strict short-run optimizing model as shown in Graphs A and B and the break-even analysis of Graph C, can provide higher profit than alternative methods. First, the modified optimizing method brings together demand and cost and thereby provides a profit estimate of each marketing alternative being considered. This virtue, although perhaps simple and obvious, is particularly significant because, both in practice and in the marketing literature, the cost aspects of marketing decisions have not received adequate emphasis.[12] Second, it uses the incomplete demand information that characterizes most marketing decisions. The executive can compare those alternatives involving positions for which he does have reasonably firm estimates of buyers' and competitors' responses and choose the best from among these.

Finally, in two senses the modified form of the profit-maximizing principle approximates the appropriate concept of cost, which is marginal or incremental cost and thus represents an application of the profit contribution concept instead of the net profit concept: (1) by separating total cost into "fixed" and "variable," and (2) by distinguishing between "traceable" and "common" costs, the marginal concept is further approximated. "Traceable" means those costs that practically can be traced to a part of the company's operation rather than being identifiable only with the company as a whole. Earlier, in discussing criteria for classifying costs, it was said that, for making a decision, costs must be assembled or classified according to some basis. "Traceability" results from the application of a criterion of classification, and the part of the company to which the costs are traced is the criterion in a specific situation. If costs are traced to a product, then "product" is the criterion of classification. The distinction between traceable and common costs is important because the marketing executive usually makes decisions involving only parts of the company.[13]

The full significance of the distinction between the contribution-to-profit analysis and the net-profit analysis is difficult to convey, and yet its importance can hardly be exaggerated. In the typical situation —a multiproduct company with large common costs which for purposes of rational decision should be traced to specific products— serious mistakes in decision can occur if net-profit analysis is used. The principle of profit contribution, once understood, is deceptively simple, but the prevalence of its violations in practice is striking.

The strict break-even analysis which embodies the net-profit principle, however, can be useful for some problems. For example, one of the distribution problems sometimes discussed is how effectively the modern supermarket can weather a depression. Estimates of the effect of declining consumer incomes on supermarket sales (income elasticity) combined with break-even analysis would suggest whether there is likely to be a problem. Although helpful in indicating that a problem exists, the chart throws little light on what should be done to solve the problem. Also, top management is often concerned with the effect of a proposed course of action on net profit as well as on contribution to profit. For example, very heavy current advertising outlays may yield the greatest long-term contribution to profit, but the accounting practice is to consider these outlays a current expense which reduces current income. Stockholder dissatisfaction with the consequent low level of net profits might deter management from accepting the most profitable course of action. Thus, break-even analysis is helpful in suggesting the effect on net profits.

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[12] For a similar conclusion, see James S. Earley, "Marginal Policies of 'Excellently Managed' Companies," *American Economic Review* XLVI (1956), 51. See, however, Donald R. Longman and Michael Schiff, *Practical Distribution Cost Analysis* (Homewood, Ill.: Richard D. Irwin, Inc., 1955).

[13] James S. Earley, "Recent Developments in Cost Accounting and the 'Marginal Analysis,'" *Journal of Political Economy,* LXIII (1955), 235.

As a device for predicting cost-volume-profit relationships, the break-even chart contains many assumptions, and the chart is no better than the analysis that underlies these assumptions. See Appendix 1 at the end of this chapter for the nature of the analysis that should be followed in obtaining the necessary data to use the break-even chart; however, since many of the comments apply to using the short-run optimizing model as well as to the break-even analysis, the reader will find them useful.

LONG-RUN OPTIMIZING

The principles required for optimizing long-run decisions are simply an extension of those for optimizing short-run decisions. To relate the discussion here to the short-run optimizing model, it can be said that a decision concerning a capital outlay, for example, to expand plant capacity, implies moving the company to a new position farther out on the envelope curve of Figure 29. Most long-run marketing decisions, however, involve expenditures that are intended primarily to improve sales instead of increasing plant capacity, but the decisions are similar analytically.

A long-run decision is defined as one entailing an outlay of funds (a cost which in this case is labeled an "investment") today which yields a return (a revenue) at some future time, and thus, such an outlay becomes a fixed cost for the future. To evaluate alternative marketing plans involving such outlays, it is necessary to evaluate a stream of revenues over future years in relation to the original cost outlay in order to estimate the profit of each alternative to the company. In addition, an outlay today—e.g., the cost of initiating a new product—not only involves future revenues but also is often a commitment to make *future* fixed cost outlays. For instance, if a new product is initiated today, future sales growth will require additional plant expansion to provide the necessary production capacity. In this case, a stream of future revenues *and* a stream of future costs must both be evaluated to arrive at a profit estimate in deciding which marketing plan is best. The analytical tools appropriate for making investment decisions have come to be called *capital budgeting,* and a particular version of capital budgeting (where the present value criterion is used) will be referred to here as the *long-run optimizing model.*

Should marketing expenditures be treated as investments? Most marketing outlays are of the variety that yield at least a part of their return at some more distant time rather than within the current year. Advertising is often of this kind. In fact, it is sometimes argued that this is the only way that advertising should be viewed.[14] The cost of developing a sales force is another example. A market area (a sales territory) in which the company has achieved market acceptance should probably be viewed as a fixed asset.[15] The increased emphasis upon new products highlights still another example. Although the typical practice may be to charge off such items as advertising and sales force expenditures against *current* income, the expenditure should be viewed as an investment, at least in making the decision, as opposed to the way subsequent accounting procedures now tend to portray it. Scattered evidence suggests a growing tendency for companies to treat some marketing outlays as an investment even in their accounting procedures.

Traditionally, marketing decisions have been viewed as essentially short term in character; therefore, let us examine the nature of the new product decision a little further. When a new product is evaluated, one particular *total* marketing plan is being implicitly evaluated, e.g., a given level of advertising over the period, a certain personal selling effort, etc. With the apparent increased emphasis upon long-term planning in companies,[16] we will probably begin an attempt to evaluate *alternative* long-term total plans of *ongoing* products. This lengthening horizon is partly essential because some of the elements of these plans imply expenditures which logically should be treated as investments. In addition, the longer horizon enables us to deal, over time, explicitly with dependencies that do *not* necessarily require investment funds. A price decision, for example, can over a period lead to a change in the structure of the market in a given industry which will affect the *time pattern* of inflows and outflows of cash. This possibility, combined with management's longer planning horizon, would seem to open a fertile field for the application of capital budgeting to evaluate long-term total plans for ongoing products as well as new products.

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[14] See, for example, Martin R. Gainsbrugh, "Viewing Advertising as Investment . . . ," *Advertising Age,* February 2, 1959, pp. 69–70.

[15] Michael Schiff, "The Sales Territory as a Fixed Asset," *Journal of Marketing,* XXV (1960), 51–53.

[16] See, for example, "Big Job Is Open: 'Looking Ahead,'" *New York Times,* August 7, 1960, p. F 5.

The use of a long-term planning horizon when considering marketing problems forces greater explicit attention to integrating the various elements of a total marketing plan in order to obtain consistency among the parts. The position of product manager or brand manager has apparently arisen from the need to obtain consistent and coherent planning for individual products or groups of products in companies. A long-term view also contributes another temporal consistency; it will work to minimize, for example, the possibility that a sales force developed to achieve a market position for a product will be so large that it represents excess capacity once the position is achieved.

Finally, data that are derived in applying capital budgeting (sales and cost estimates) can be used later as a means of control in appraising the success of the decision.

Application of the Long-Run Optimizing Model

Capital budgeting is often referred to as the discounted cash flow method; the basic principle is to evaluate the *net flow of cash* (the difference between the additions to cash and the deductions from cash) that is expected to result from each of a number of alternative investments.[17] The cash flow method is used to select the investment offering the greatest difference between total revenue and total cost and is particularly appropriate for comparing alternatives with widely varying expected time patterns of inflows and outflows of cash—a condition that usually characterizes marketing alternatives.

An application of capital budgeting to the product decision in a manufacturing company provides a concrete illustration of its elements. Assume that the decision has been made by top management to initiate one of two products, A or B, so that the problem is to choose between them.

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[17] The basic reference here is Friedrich and Vera Lutz, *The Theory of Investment of the Firm* (Princeton: Princeton University Press, 1951), especially chap. ii.

The cash inflow data for Product A, exclusive of investment, are summarized in Table 17, and the outflow (investment data) are incorporated in Table 18.[18] A long-term forecast of sales is necessary to obtain the data required in Column 2 of Table 17, and the comments about long-term demand analysis in Chapter 5 are applicable here. Also, the principles of cost analysis discussed earlier in this chapter are essential in deriving the cost data required for Column 3.

Assume that, at the end of ten years, both the market for the product and the equipment used in producing it are exhausted, that inventories and accounts receivable are converted into cash, and that accounts payable are paid. All figures are incremental in the sense that they reflect only the consequences of the *additional* activity that would be encountered as a result of adding the product. The estimated annual revenues from the product are shown in Column 2 of Table 17, and the associated costs (excluding investment and accruals) are shown in Column 3. Column 4 is the difference between Columns 2 and 3. The effects of the corporate income tax are reflected in Columns 5 through 8.

TABLE 17

ANALYSIS OF EXPECTED CASH INFLOW FROM PRODUCT A

(1) Year	(2) Sales Revenue	(3) Costs	(4) Cash Inflow before Taxes	(5) Depreciation for Tax Purposes	(6) Taxable Income	(7) Taxes	(8) Cash Inflow after Taxes
1...	$ 700,000	$560,000	$140,000	$ 43,800	$ 96,200	$ 48,100	$ 91,900
2...	805,000	620,000	185,000	41,000	144,000	72,000	113,000
3...	850,000	660,000	190,000	37,800	152,200	76,100	113,900
4...	884,000	680,000	204,000	38,800	165,200	82,600	121,400
5...	891,000	700,000	191,000	35,700	155,300	77,700	113,300
6...	924,000	720,000	204,000	32,300	171,700	85,900	118,100
7...	960,000	760,000	200,000	29,300	170,700	85,400	114,600
8...	1,024,000	800,000	224,000	30,100	193,900	97,000	127,000
9...	1,088,000	840,000	248,000	26,300	221,700	110,900	137,100
10...	1,120,000	860,000	260,000	22,900	237,100	118,600	141,400

Source: John A. Howard, *Marketing: Executive and Buyer Behavior* (New York: Columbia University Press, 1963), Table 1, p. 52.

Under the corporate income tax regulations of the Internal Revenue Service, depreciation can be charged against income in computing a corporation's income tax; thus, depreciation is introduced in Column 5 since it reduces the taxable income and therefore reduces the taxes, which must be borne by the revenue expected from the investment. The figures in Column 5 are arrived at by the sum-of-the-years-digits method (*SOYD*) of calculating depreciation, which gives the greatest weight to early years. Let us assume that for tax purposes the economic life of this asset is 15 years, and thus, for the first year the depreciation on $350,000 is $43,750, which is rounded off to $43,800. This is computed by summing the years as the denominator and inserting the particular year as the numerator, that is, 15/120. The second year, 14/120 is depreciated, etc. Also, it is assumed that a depreciable investment outlay of $350,000 will be required for the first year of operation, and that to meet an expanding market, depreciable outlays of $30,000 each will be necessary at the end of the third and seventh years.

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[18] For a detailed description of how the specific data in Tables 17 and 18 are derived, see John A. Howard, *Marketing: Executive and Buyer Behavior* (New York: Columbia University Press, 1963), chap. iii.

In Table 17, Column 5 is deducted from Column 4 to give taxable income shown in Column 6, which is then multiplied by an approximate tax rate of 50 per cent to arrive at the tax figure in Column 7. The data in Column 7 are then deducted from Column 4 to obtain Column 8, which constitutes the estimated additions to company cash flows that would result if this product were added.

The investment outlays are incorporated in Table 18 so the *net* cash flow can be evaluated. Assume that an investment of $500,000 will be required to begin production of Product A and that additional investments of $50,000 each (500,000 units of capacity) must be made at the end of the third and seventh years to satisfy the expanding market. As indicated above, however, only a portion of these investments is depreciable. The investments are shown in Column 2 of Table 18. Column 3 is, of course, Column 8 from Table 17. Since working capital of $160,000 will exist at the end of ten years, this figure is shown as a cash inflow in Column 4. Thus, Columns 2, 3, and 4 summarize the cash flows that are expected to result if Product A is added.

To conclude that Product A is better than B, the *present-value criterion* is used: each cash flow is discounted by the *cost of capital* to arrive at a present value, and the product with the highest present value is preferred. A 10 per cent cost of capital is arbitrarily assumed here. The discount factors shown in Column 5 that are appropriate to this cost of capital can be read from the 10 per cent column of an interest table that compounds continuously.[19] The asterisked factors,

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[19] Most published present-value tables compound discretely, e.g., annually, but strictly speaking, continuous compounding is more appropriate. If the profit from the venture will be reinvested in the firm as it is received, then it is being added to continuously. Which method of compounding is used makes some difference; the 10 per

TABLE 18

PRESENT VALUE OF PRODUCT A

(1) Year	(2) Discrete Investment End of Year	(3) Continuous Cash Inflow during Year	(4) Discrete Cash Inflow End of Year	(5) 10% Discount Factors	(6) Present Value of Discounted Cash Flow
0....	$500,000			1.0000*	−$500,000
1....		$ 91,900		.9516	87,452
2....		113,000		.8611	97,304
3....		113,900		.7791	88,739
3....	50,000			.7408*	− 37,040
4....		121,400		.7050	85,587
5....		113,300		.6379	72,274
6....		118,100		.5772	68,167
7....		114,600		.5223	59,856
7....	50,000			.4964*	− 24,820
8....		127,000		.4726	60,020
9....		137,100		.4276	58,624
10....		141,400		.3869	54,708
10....			$160,000	.3679*	58,864
					$229,735

Source: John A. Howard, *Marketing: Executive and Buyer Behavior* (New York: Columbia University Press, 1963), Table 2, p. 54.

however, are of a slightly different nature; they apply to those flows in Columns 2 and 4 that occur all at once, rather than uniformly throughout the year.

The first step in obtaining the present value of the flow is to multi-

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cent present-worth factor for the first year as indicated in Table 18 is $\left(\frac{e^{rt}-1}{rt}\right)\left(e^{-rt}\right)$ $= 0.9516$ when compounding *continuously* over the entire year, where e is the base of the natural logarithm, r is the annual rate of interest (as a decimal), and t is time (in years). With *annual* compounding the factor is approximately 0.9535.

Also, the method of deriving the continuous discount factors used in Table 18 assumes, for purposes of calculation, that since the inflow of cash occurs continuously and uniformly during the year, all of it is received in the middle of the year. If the alternative unrealistic assumption is made that all cash is received at the end of the year, the appropriate, continuous discount factor is 0.9048 instead of 0.9516 for the first year. As above, continuous discounting under the unrealistic assumption yields a present worth factor of 0.9048, whereas with annual discrete discounting it is 0.9091.

Finally, the way in which the rate of interest is defined makes a difference. In Table 18 we have called the rate of interest r, an exponent of e. Thus $e^{.10} \cong 1.10517$. In the discrete case, it is more usual to call the rate of interest R, an element in the expression $(1 + R)^t$ where t again denotes the number of periods over which to compound. The relation of r to R is explicit in the following pair of equations, accurate to five decimals:

$$(1)\quad e^{0.10} \cong 1.10517$$

$$(2)\quad e^{0.09531} \cong (1 + 0.10)^1$$

If the rate of interest were defined as R as it is in Equation 2, then the continuous compounding factor for a uniform continuous flow would be 0.9538 instead of 0.9516 as shown in Table 18.

These comparisons of discounting methods, assumptions about the nature of the flow, and definitions of the interest rate are made to guide the reader in using present-worth tables which often are not explicit about how they are derived and thus leave the user in a quandary as to why he finds differences among them.

ply the cash flow by the discount factors. The outflow is viewed as negative values, and the inflow as positive values, as shown in Column 6 of Table 18, and these values are summed algebraically. Since the present value figure of $229,735, the summation of Column 6, is a *positive* figure, Product A would be a profitable use of company funds. Thus, the rule is that any investment which yields a positive present value should be accepted *provided* that *unlimited investment* funds are available to the company. Stated in this way the decision really involves *how much money in total* should be invested.

However, the typical investment problem at the level of the marketing department is to determine in which particular marketing alternatives a given amount of funds should be invested, the total amount of funds to invest having been decided at a higher level. The example here was formulated as a marketing department problem: should the company invest in Product A *or* Product B? They are mutually exclusive alternatives. The solution to this problem is more complex.

If Products A and B require the same amount of investment, the above strategy (take whichever product has the higher present value) is applicable.[20] The rule is not correct, however, if A and B should require different amounts of investment. A solution to this last situation is to use another criterion—the present value per dollar invested.

Planning Horizon

In the example, the time period taken as the basis of analysis (the planning horizon *for this decision*) was ten years, because it was believed that this period would constitute the life of the product. The selection of a planning horizon for making a capital budgeting decision must be highly judgmental, but the nature of the analysis makes the problem of deciding upon the appropriate planning horizon less serious than first appears because the discount factor causes distant years to have less effect upon the present value than near years.

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[20] A different criterion than the present value, namely the internal rate of return, yields an unambiguous answer. It is computed by finding a discount rate that when applied to the stream of net inflows of cash and to the stream of net outflows of cash will reduce them to the same value. Using this criterion, the rule is to select the alternative with the highest rate of return, but it assumes that all net cash flows (positive or negative) intermediate between the initial and terminal positions can be compounded at the particular rate of return that is calculated for the project. More specifically, it assumes that all positive net flows can be invested at this rate of return and that all net outflows (investments) are borrowed at that rate. The assumption is usually not correct; for example, the positive net cash inflows are usually reinvested at a lower rate. To the extent that the rate is lower, the use of the internal-rate-of-return criterion overstates the actual return. The present-value criterion, on the other hand, assumes that the positive net flows will be reinvested at the cost of capital.

There need be no relation between the length of the planning horizon for a particular investment decision and that used for on-going, routine planning referred to in Chapters 1, 2, and 15.

SUMMARY

The parts that make up the optimizing apparatus have been brought together. One part is the criterion of decision—the maximum expected long-term contribution to profit (Chapter 2). A second part is the demand relation—the relation between sales and a determinant of sales. Chapters 3, 4, and 5 were concerned with the psychological and social mechanisms that underlie the demand relations and that are helpful in seeking out and measuring the determinants of both current and future demand. It was recognized that competition (Chapter 6) is one of the influences upon the shape of the controllable demand relations, particularly upon the price-sales relation. Finally, the third part of the optimizing apparatus, the appropriate cost concepts, was developed and illustrated.

A number of cost concepts taken from accounting practice and cost theory can be reconciled and applied to practical problems. The techniques of measuring them vary all the way from simple inspection to refined statistical methods. The principle underlying all cost analysis for marketing decisions is that of relevancy—only those costs that are affected by the decision should be included. Thus, *a specific cost that is fixed for one marketing decision may not be fixed for another decision being made at the same time.* Although a useful tool, the break-even chart can be seriously misleading.

Two general kinds of decisions exist: short-run and long-run. Contribution to profit is the appropriate optimizing strategy for the former; present value, for the latter. These are two *general* normative decision models applicable to any type of marketing decision. Later, examples will be seen of specific decision models—those designed for a more specific kind of decision, for example, how to allocate salesmen to sales territories as described in Chapter 14.

APPENDIX TO CHAPTER 7

CONSTRUCTION OF BREAK-EVEN CHART

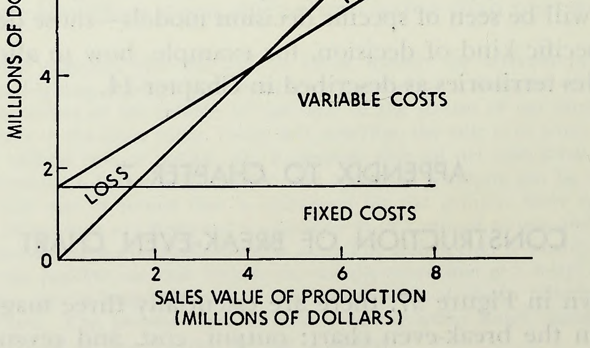
As shown in Figure 37, there are essentially three magnitudes to measure in the break-even chart: output, cost, and revenue. If the chart is used in decision making, it must also be projected into the future.

Measurement of Output. Multiplicity of products complicates the problem of measuring company output, particularly when the product mix changes from time to time. The solution is an index which may be in terms of either sales or production when more than one product is being considered in the analysis.

Typically, an index of sales in dollars is used. For a company in which selling, as contrasted with production, is the dominant activity or where sales and production are closely related temporally, sales is a satisfactory measure of output. If one of these conditions does not exist, production must be used in order to avoid serious errors. When sales are used, adjustments for price changes may be necessary.

In constructing an index of production, production can be measured as follows: (1) in dollars, either current or corrected for the price level; (2) in a simple count of physical units produced; or (3) by an index that weights dissimilar products on the basis of standard production costs. The index in the third method would be the sum of the number of units of each product multiplied by its standard production cost; if the products are of a great variety, this index is the most feasible solution.

FIGURE 37
BREAK-EVEN CHART



Measurement of Cost. Since cost behavior constitutes the central problem of constructing break-even charts, much of what has been said earlier in the chapter applies here. There are essentially three ways of dealing with cost behavior in break-even charts: the accounting, the statistical, and the engineering.

The accounting approach is much the simplest since it consists in classifying accounts into fixed, variable, and semivariable by means of inspection and judgment. Because of its subjective nature, the method is open to serious criticism. Thus, the user of the cost data derived by the accounting method should investigate the logic used in classifying the accounts. This method of determining the cost relationships may be satisfactory if three conditions exist: (1) there have been wide fluctuations in production; (2) a detailed breakdown of accounts has been kept on the same basis for a number of years; and (3) such items as wage rates, material prices, plant size, and technology have been fairly constant. These same conditions are needed for the use of the statistical method.

The statistical approach is usually more accurate but typically more expensive, and its cost depends in part upon the degree of accuracy desired. The example of the food processing company presented earlier in this chapter illustrates how the statistical method is applied and the conditions that are necessary for its application. Graphic multiple-regression analysis is usually a good preliminary step; from its results the decision can be made whether or not to proceed with mathematical regression.

The first step in the engineering approach is to obtain an engineer's estimates of the physical relations involved. These estimates are secured from an investigation of the rated capacity of the equipment, the labor requirements, and efficiency. The next step is to obtain a cost estimate by applying the prices of the cost items to the physical relations. The engineering method is particularly useful when experience is inadequate to provide the information required for either the accounting or statistical methods.

Measurement of Revenue. The revenue function is usually the easiest of the three dimensions to measure. In Figure 37 it is in the simple form of dollars of sales, but in this form it contains three assumptions—that realized prices, product mix, and marketing-channel mix are *constant.* The revenue function must be constructed for the conditions appropriate to the problem at hand.

Chapter 8

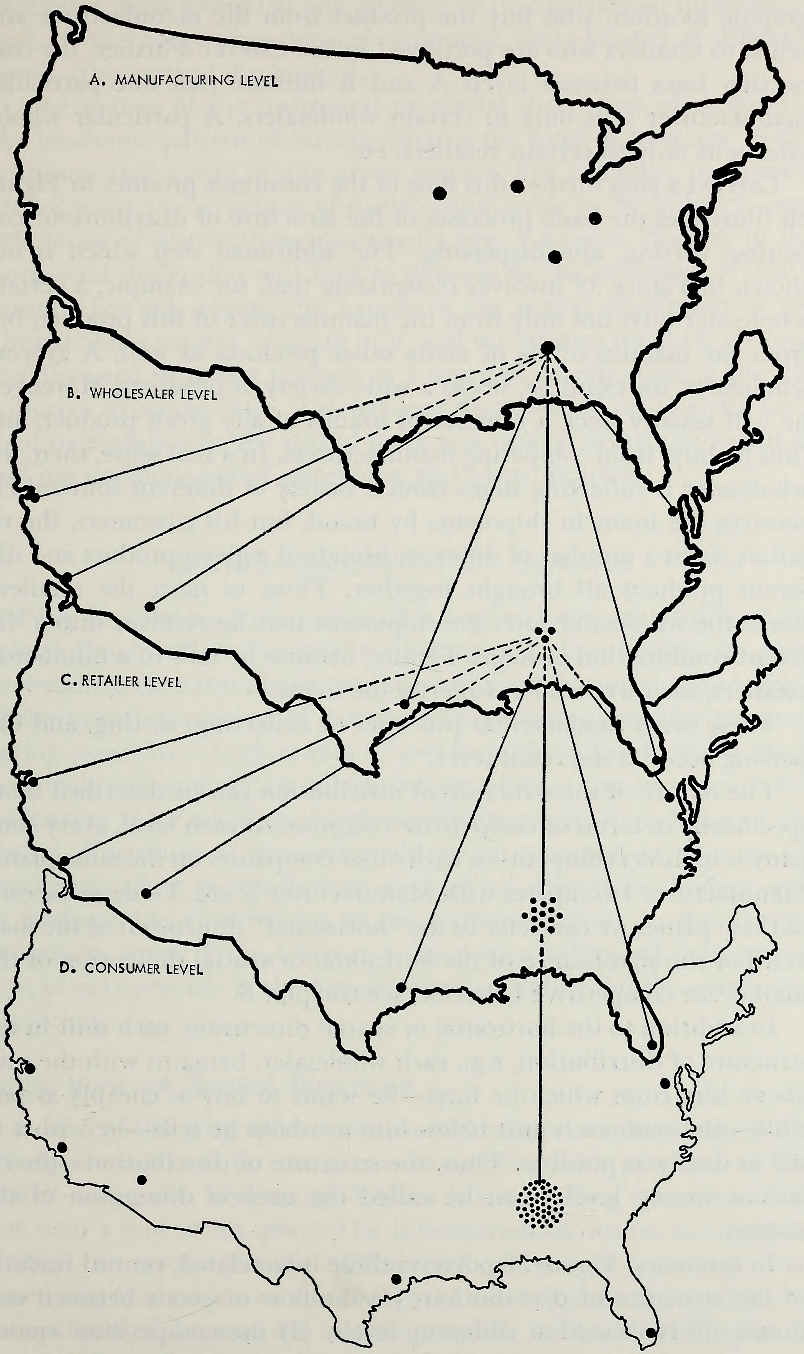
LOCATIONAL PATTERN OF THE MARKET AND THE STRUCTURE OF DISTRIBUTION

Two interrelated complications that have largely been assumed away in earlier chapters are now introduced: the structure of distribution and the spatial dimension of the market. By "structure of distribution" is meant all the middlemen that are in use by all companies at any given time, their capacities and their geographic coverage. "Spatial dimension" refers to the geographic locational pattern of buyers and sellers. These terms can be used with respect to a single product, a group of products, or the economy as a whole.

An understanding of the structure of distribution is important because each chief marketing executive must decide which "route" through the structure of distribution he will take in distributing his product; in other words, he must decide which marketing channel he will use. It is difficult, however, to grasp quickly the complicated nature of the structure of distribution when all elements in it—manufacturers, wholesalers, retailers, and consumers or users—are viewed as located on the same plane as they are, in fact, in the real world. To show them in different planes as in Figure 38 clarifies the nature of the relationships among them. Figure 38 describes the structure of distribution for a consumer product. The A level depicts the number and geographic location of the companies manufacturing the consumer product. The B level represents the wholesalers, and their geo-

FIGURE 38

Structure of Distribution and Spatial Dimension of the Market


A. MANUFACTURING LEVEL
B. WHOLESALER LEVEL
C. RETAILER LEVEL
D. CONSUMER LEVEL

THE DIAGRAM FOCUSES UPON BIRMINGHAM, ALABAMA ONLY TO ILLUSTRATE THE FLOW OF A CONSUMER PRODUCT FROM LEVEL TO LEVEL OVER THE ENTIRE CONTINENTAL UNITED STATES; ALSO, THE NUMBER OF WHOLESALE ESTABLISHMENTS, RETAIL STORES, AND HOUSEHOLD UNITS SHOWN FOR BIRMINGHAM IS FAR LESS THAN THE ACTUAL NUMBER.

graphic location, who buy the product from the manufacturer and sell it to retailers who are portrayed in the C level. Further, the connecting lines between levels A and B indicate that one particular manufacturer sells only to certain wholesalers. A particular wholesaler sells only to certain retailers, etc.

Carried a step further this flow of the consumer product in Figure 38 illustrates the basic processes of the structure of distribution: collecting, sorting, and dispersing. The additional step which is not shown in Figure 38 involves recognizing that, for example, a certain wholesaler buys not only from the manufacturer of this product, but from the manufacturers of many other products as well. A grocery wholesaler, for example, stocks a wide variety of products, Moreover, he will usually stock a number of brands of any given product, and thus he buys from competing manufacturers. In a real sense, then, the wholesaler is *collecting* items from a variety of different sources. He receives the items in shipments by brand, but his customers, the retailers, want a number of different brands of a given product and different products all brought together. Thus, to meet the retailer's needs the wholesaler *sorts* the shipments that he receives into a different combination of items. Finally, because he sells to a number of retailers, each wholesaler *disperses* the items.

These same fundamental processes of collecting, sorting, and dispersing occur at the retail level.

The nature of the structure of distribution can be described more specifically in terms of *competitive relations*. At each level, every company is in direct competition with other companies on the same plane; Manufacturer 1 competes with Manufacturer 2, etc. To describe each of these planes we can refer to the "horizontal" dimension of the market. For the significance of the *horizontal* or spatial dimension of the market for competitive behavior, see Chapter 6.

In addition to the horizontal or spatial dimension, each unit in the structure of distribution, e.g., each wholesaler, bargains with the unit above him from which he buys—he wants to buy as cheaply as possible—and with each unit below him to whom he sells—he wishes to sell as dearly as possible. Thus, the structure of distribution—the relations *among* levels—can be called the *vertical* dimension of the market.

In summary, Figure 38 portrays three interrelated, central features of the structure of distribution: (1) the flow of goods between economic units located at different levels, (2) the competition among economic units located at any given level (the horizontal dimension), and (3) the bargaining between economic units located at different levels (the vertical dimension).

The nature of the horizontal or spatial dimension of demand—the locational pattern of buyers—shapes the kind of structure of distribution that exists in any given market. For example, in sparsely settled areas the structure of distribution tends to be indirect—several levels of distribution instead of a few. Likewise, *changes* in the horizontal dimension will lead to *changes* in the structure of distribution. For this reason the nature of the spatial dimension of the United States market, changes in it, and the reasons for these changes are discussed next as a prelude to a detailed examination of the distributive structure. Also, it so happens that some of the analytic tools used to explain why the spatial pattern is what it is are also useful in making decisions about warehouse and plant location.

SPATIAL DIMENSION OF DEMAND

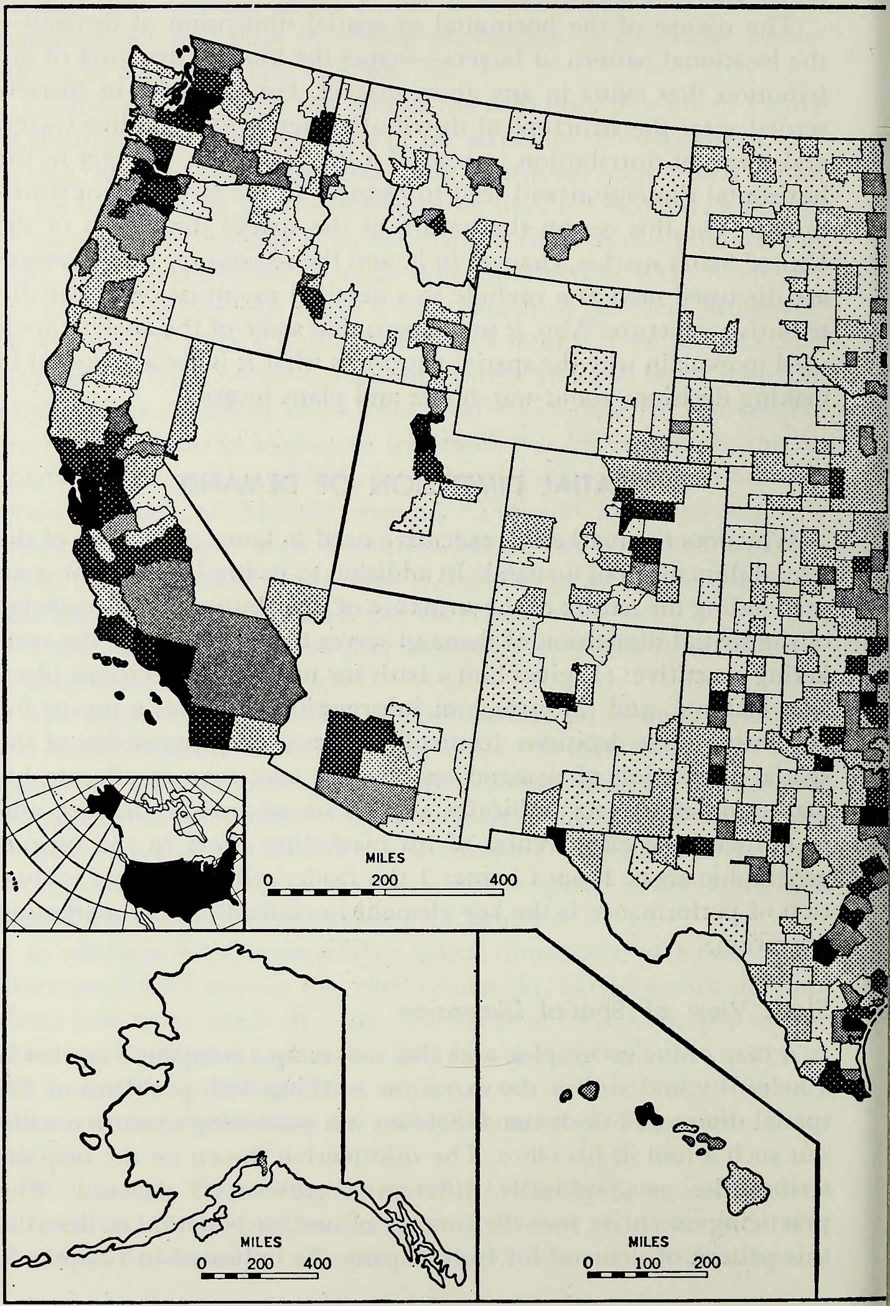
Why does the marketing executive need to know something of the spatial dimension of demand? In addition to its implications for comprehending the nature of the structure of distribution, the knowledge of the spatial dimension of demand serves two purposes for the marketing executive: (1) gives him a basis for making his decisions (decision making), and (2) gives him information to use as a means for evaluating these decisions (control). For example, knowledge of the spatial dimension of demand enables the executive to allocate his marketing effort geographically, such as his advertising budget, and to evaluate the effectiveness of his marketing effort in the various geographic areas. From Chapter 1 the reader will recall that evaluation of performance is the key element in controlling the marketing operation.

Static View of Spatial Dimension

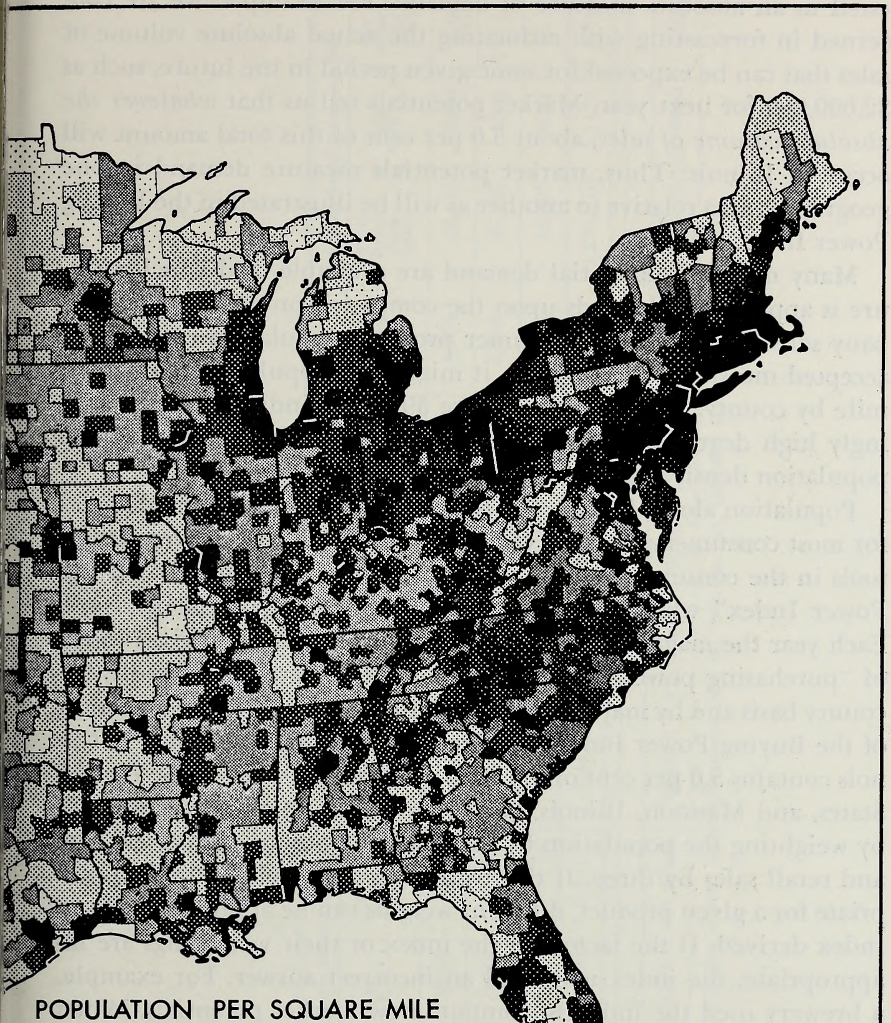
A map of the geographic area that makes up a company's market is a helpful visual aid for the executive working with problems of the spatial dimension of demand. Seldom is a marketing executive without such a tool in his office. The information shown on the map describes the geographically differential pattern of demand. The practicing executive uses the concept of *market potential* to describe this pattern of demand for his company. As indicated in Chapter 5,

FIGURE 39

Population per Square Mile by Counties, 1960


MILES
0
200
400
MILES
0
200
400
MILES
0
100
200

Source: U.S. Bureau of the Census, *Census of Population, 1960* (Washington, D.C.: U.S. Government Printing Office, 1961), p. S14.


POPULATION PER SQUARE MILE
UNDER 5
5-9.9
10-24.9
25-49.9
50-99.9
100-249.9
250 OR MORE

DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS however, market potential tends to be used as a *relative* measure instead of an *absolute* measure of demand. In forecasting we are interested in an absolute measure of demand. For example, we are concerned in forecasting with estimating the actual absolute volume of sales that can be expected for some given period in the future, such as $2,000,000 for next year. Market potentials tell us that *whatever the absolute volume of sales,* about 5.0 per cent of this total amount will occur in Illinois. Thus, market potentials measure demand in one geographic area relative to another as will be illustrated in the Buying Power Index below.

Many measures of spatial demand are available, and which measure is appropriate depends upon the company's product. If the company sells a widely used consumer product, population may be the accepted measure. For example, it might be "population per square mile by county," as shown in Figure 39 which indicates the exceedingly high degree of geographic differentiation with respect to the population density that characterizes the United States.

Population alone, however, is only a crude measure of the demand for most consumer products. One of the most widely used marketing tools in the consumer products field is *Sales Management's* "Buying Power Index" which attempts to provide a more precise measure. Each year the magazine *Sales Management* publishes a revised index of "purchasing power" for the entire United States on a county-by-county basis and by major cities in a county. Table 19 shows a portion of the Buying Power Index for Illinois. According to the index, Illinois contains 5.0 per cent of the total purchasing power in the United States, and Mattoon, Illinois, 0.0121 per cent. This index is derived by weighting the population by two, effective buying income by five, and retail sales by three. If this weighting is thought to be inappropriate for a given product, different weights can be applied and a new index derived. If the factors in the index or their weightings are inappropriate, the index will yield an incorrect answer. For example, a brewery used the index to compute new market potentials. When sales in the metropolitan areas did not meet the sales expectations based upon the index, thorough examination of the problem showed that total retail sales in a market have little relation to the sales of beer in that market. For the brewery, the important determinants of sales were thought to be the number of people over 18 years of age, social class, and per capita consumption of malt beverages.

If a company is selling an industrial product, some criterion other than population is usually necessary. In some ways, a much more

TABLE 19

BUYING POWER INDEX

COUNTIES CITIES	POPULATION ESTIMATES, 12-31-61				EFFECTIVE BUYING INCOME ESTIMATES, 1961				RETAIL SALES ESTIMATES, 1961			BUYING POWER INDEX
	Total (000)	% of U. S. A.	House-holds (000)	Consumer Spending Units (000)	Net Dollars (000)	% of U. S. A.	Per Capita (000)	Per House-hold (000)	Total Retail Sales (000)	% of U. S. A.	Per House-hold (000)	
Coles......	43.4	.0235	13.8	15.7	80,092	.0220	1,845	5,804	60,513	.0276	4,385	.0240
Mattoon..	19.0	.0103	6.3	6.6	37,067	.0102	1,951	5,884	35,787	.0163		.0121
Charleston	10.8	.0059	3.2	4.8	20,812	.0057	1,927	6,504	15,503	.0071		.0062
Illinois....	8,012.8	4.3430	2,431.1	2,642.6	19,556,373	5.3897	2,441	8,044	11,213,616	5.1123	4,613	5.0972
United States	184,511.0	100.0000	54,473.8	59,596.2	362,844,222	100.0000	1,967	5,979	219,315,563	100.0000	4,026	100.0000

Source: Adapted from, "Survey of Buying Power," *Sales Management*, June 10, 1962, pp. 130, 138, 410, 419, 612, 613.

precise measure is available for industrial products than for consumer goods. A combination of industry definitions and statistical sources has been developed to provide a method that will be referred to as the Standardized Industrial Classification (S.I.C.) method. Within the past ten years this method has become widely accepted in one form or another as an essential tool in industrial marketing.

The S.I.C. method relies mainly on four sources of information:

1. The *Standard Industrial Classification Manual.*[1]
2. A government publication called *County Business Patterns.*[2]
3. Various state and regional industrial directories.
4. The sales records of the company under consideration.

In the *S.I.C. Manual* each industry is defined and assigned a code number. The part of the manual that shows certain furniture industry definitions is reproduced in Figure 40. The definitions are formulated so as to facilitate using different degrees of precision in the information, depending upon the needs of the user. For example, Major Group No. 25 "Furniture and Fixtures" may be adequate for some purposes, but for other purposes the more specific Group No. 251 "Household Furniture" or even Industry No. 2511 "Wood Household Furniture, Except Upholstered," may be required. Distributive establishments, both wholesale and retail, are included in the code.

County Business Patterns—the second source used by the S.I.C. method—contains statistics on the number of business establishments and employees in various industry groups of selected counties of location. This information provides the reader with a detailed description of the spatial dimension of demand for a specific industrial product. The relevance of the other two sources, state and regional industrial directories and company sales records, is shown in the following example of the S.I.C. method in practice.

The experience of the Signode Steel Strapping Company illustrates a procedure that may be followed in using the S.I.C. method.[3] First, the S.I.C. industry code number for each of its customers was determined by consulting the *Standard Industrial Classification Manual.* The appropriate S.I.C. code number was then placed on each customer's sales invoice. Signode periodically sorted all invoices according to industry and tabulated its sales by industry code number.

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[1] Bureau of the Budget, *Standard Industrial Classification Manual,* Vol. 1, *Manufacturing Industries,* Part 1, Titles and Descriptions of Industries (Washington, D.C.: U.S. Government Printing Office, 1945).

[2] U.S. Department of Commerce and U.S. Department of Health, Education and Welfare, *County Business Patterns, First Quarter, 1959* (Washington, D.C.: U.S. Government Printing Office, 1961), Parts 2–10.

[3] S. E. Heymann developed the method for Signode Steel Strapping Company and provided the information contained here.

FIGURE 40

INDUSTRY DESCRIPTIONS USED IN STANDARD INDUSTRIAL CLASSIFICATION

Major Group 25: Furniture and Fixtures

THE MAJOR GROUP AS A WHOLE

This major group includes establishments engaged in manufacturing household, office, public-building, and restaurant furniture; and office and store fixtures.

Group No.	Industry No.	
251		**HOUSEHOLD FURNITURE**
	2511	**Wood household furniture, except upholstered** Establishments primarily engaged in manufacturing wood household furniture commonly used in dwellings.
	2512	**Wood household furniture, upholstered** Establishments primarily engaged in manufacturing upholstered furniture on wood frames, or manufacturing wood frames for upholstered furniture.

Source: Bureau of the Budget, *Standard Industrial Classification Manual,* Part 1, Titles and Descriptions of Industries (Washington, D.C.: U.S. Government Printing Office, 1957), p. 68.

In order to estimate the sales potential of an area, Signode employed the following procedure:

1. The company has found that there generally is a relationship between the amount of steel strapping used by an industrial establishment and the number of its employees, and that this relationship differs for each industry. In order to determine this relationship, within each industry a number of customers known to purchase all of their strapping from Signode is chosen; then the size of the establishment is related to the amount of strapping used by each customer. Knowing the annual purchases of strapping by these customers and obtaining their total number of employees from the appropriate industrial directory, for this sample Signode can compute an average figure of strapping purchases per employee.
2. The second step in estimating the market potential for any area is to determine from the *County Business Patterns* (or the *Census of Manufacturers*) the total number of employees in each industry group in the area concerned.
3. The final step is to multiply the number of employees in each industry group by the appropriate average annual purchase of strapping per employee in that group. The estimated total purchases of strapping for all industries represented in the area are then added to obtain the total potential for the area.

County Business Patterns and *Census of Manufacturers,* federal government publications, contain many "gaps" to avoid disclosing information about an individual establishment, but the various state and regional industrial directories serve to overcome this limitation; the applicable industrial directory can be used to determine the size of the principal establishment, and with this information the missing parts of the tabulation can be completed.[4]

The S.I.C. method is subject to certain limitations as a basis for establishing market potentials. Probably the most serious limitation is that although an establishment sells products which actually belong in more than one classification, the establishment's entire output is placed in one classification.[5] Experience has suggested another limitation—the method is feasible only if a mechanical punch card system is available. Finally, the method requires a significant outlay of clerical labor, but as mentioned earlier, it provides data for a number of promotional uses in addition to estimating spatial demand.

Although ambiguous in concept and imprecise in measurement, market potentials are essential in controlling the marketing operation. Because the concept of market potential is most widely used in managing salesmen, it will be discussed more carefully in Chapter 14.

Change in Spatial Dimension

An explanation of change in the location of economic activity is extremely complicated. Such explanations must begin with a simplified version or model which will provide insights into the real situations.[6] The model used here emphasizes the influence of transportation costs in geographically shaping a company's market area. The significance of transportation costs is often not sufficiently recognized when marketing problems are analyzed.

Market Areas. Comprehending the concept of a company's market area is the first stepping-stone toward understanding change in the location of economic activity. A company with only one plant will sell its products outward in all directions from its location to a point in each direction where it can sell just as cheaply but no cheaper than its competitor reaching the same point. At these points buyers will be

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[4] Signode made use of 61 regional, state, and local industrial directories.

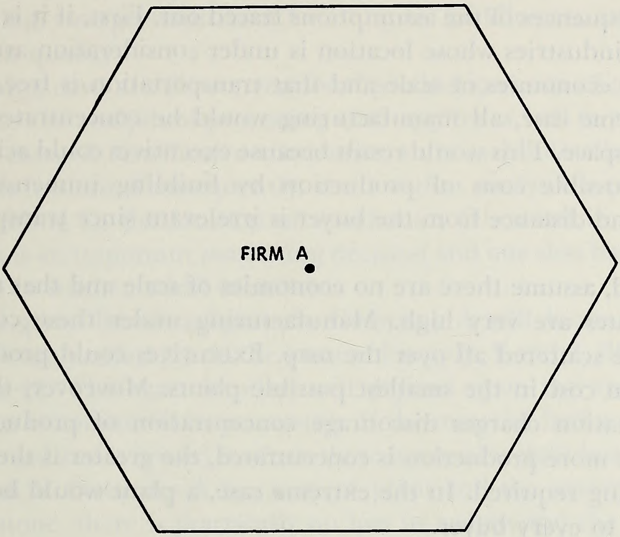
[5] For a discussion of the extent of this problem, see U.S. Bureau of the Census, *The Role of the 1954 Census of Manufacturers in Overcoming Problems of Industry Data* (Bureau of the Census Working Paper No. 2) (Washington, D.C., 1956).

[6] For recent fundamental work in location analysis, see Walter Isard *et al., Methods of Regional Analysis* (Cambridge, Mass.: Technology Press of the Massachusetts Institute of Technology, 1960).

indifferent as to whether they buy from Company A or from A's competitor. Under the conditions mentioned below, each company will have a market area shaped like a hexagon as in Figure 41 and these hexagons will absorb all space, giving the appearance of a segment of a honeycomb.[7] When all space is not absorbed, new companies will enter the industry until the circular market areas, which arise when companies have no immediate competitors, are compressed into hexagons. Shipping distance is then minimized. The conditions that give rise to a hexagonal market pattern are:

FIGURE 41

SHAPE OF FIRM'S MARKET AREA



1. All companies sell the same product.
2. All companies have identical costs and prices.
3. Cost of transportation is proportional to distance.
4. Spacing of buyers is uniform and their tastes identical.
5. Necessary raw materials are uniformly scattered.
6. Companies are free to enter the industry.

These conditions define a highly simplified model for analyzing locational problems which will be called a *market area model.* The simplified picture represented by the model can be exceedingly useful in analyzing a problem by changing the conditions or assumptions contained in the model to conform to the particular problem at hand.

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[7] Stefan Valavanis, "Losch on Location," *American Economic Review,* XLV (1955), 637 ff.

For example, a uniform distribution of buyers is seldom found. In addition to the historical or geographical accidents that have played a predominant role in many instances, three purely economic reasons account for the lack of spatial uniformity in economic activity: (1) economies of scale in production,[8] (2) transportation costs, and (3) agriculture's need for space.[9]

From a completely uniform geographic distribution of population, these reasons would lead to concentrations of economic activity, which can be illustrated when assumptions about the reasons are made and the consequences of the assumptions traced out. First, if it is assumed that the industries whose location is under consideration are subject to major economies of scale and that transportation is free, then in the extreme case, all manufacturing would be concentrated at one point in space. This would result because executives could achieve the lowest possible costs of production by building immensely large plants, and distance from the buyer is irrelevant since transportation is free.

Second, assume there are no economies of scale and that transportation rates are very high. Manufacturing under these conditions would be scattered all over the map. Executives could produce at a minimum cost in the smallest possible plants. Moveover, the heavy transportation charges discourage concentration of production because the more production is concentrated, the greater is the amount of shipping required. In the extreme case, a plant would be located adjacent to every buyer.

In practice there are economies of scale—the magnitude varying from industry to industry—and transportation is not free, the rate varying from product to product. Consequently, actual locations are a compromise between mass-production economies and freight costs.

Third, agriculture is a peculiar kind of an industry in that it requires a large amount of space in relation to its employment and volume of production. Agriculture tends to occur in areas of sparse populations, which makes economic activity even less uniformly distributed in space.

Other assumptions of the market area model will be changed in the following discussion to provide more illustrations of its application.

Theory of Plant Location. Now with the aid of the highly simplified market area model, let us attempt to answer the question, "With given locations of materials and markets how does an executive make his decision to locate?" In this way we will build on the market area model and present a more fully developed *plant location model.*

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[8] Economies of scale are described by the "envelope curve," discussed in Chapter 7.

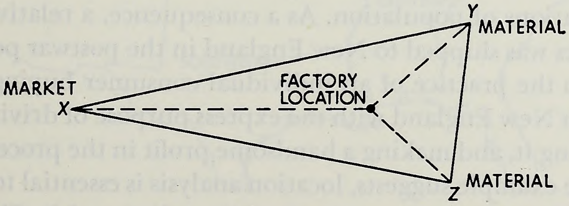
[9] Valavanis, *op. cit.*

Assume the objective of the executive is to maximize profits. He will encounter two general kinds of costs: transfer costs and processing costs. Transfer costs are mainly the cost of transporting both the raw materials and the finished product, but they also include any additional costs that arise because of selling the finished product at a greater distance. Examples of additional costs are advertising, personal selling, storage, additional handling by middlemen, and deterioration in quality

Processing costs are the conventional production costs of manufacturing, but the analysis of processing costs applies as well to the "production" costs of distributive companies, such as wholesaling or retailing institutions. Consequently, the location analysis is pertinent when deciding on the location of warehouses (discussed in Chapter 11) which is an important marketing decision and one that has proven amenable to mathematical treatment.

With a given locational pattern, Company A will locate at some point between market *X* and the source of supply, *Y* and *Z,* illustrated in Figure 42. The exact location will depend upon the amount of *weight loss* encountered in processing. If the material being supplied from *Y* is coal and it is used for fuel, there is a total weight loss in processing. But if Company A is a cement plant and the material from *Z* is limestone, there is practically no loss in weight and the finished product will weigh almost as much as the limestone required to produce it. The principle then is: *the greater the weight loss, the closer the plant should be located to the supply of that material.* This principle assumes that the freight rate is the same for raw materials as it is for the finished product. Usually the rate is higher on finished prod-

FIGURE 42
PLANT LOCATION



ucts, so as a result the tendency is to locate somewhat closer to the market.

High weight-loss processes, then, tend to be "material-oriented" because the finished product weighs less than the materials used to make it. Therefore, there is a cost advantage in shipping the finished product. The relative weight losses of the various raw materials of a product determine the particular raw material, *X* or *Y*, to which the plant location is oriented. Low weight-loss processes tend to be "market-oriented" because there is no cost advantage in shipping the finished product as compared to shipping the raw materials. Incorporating the location of a labor supply into the analysis of regional location leads to "labor-oriented" locations. Also, the analysis applies when additional markets are introduced just as well as it applies when there is more than one source of raw materials, as shown in Figure 42.

This simple plant location model has been used to explain certain locational tendencies, and by identifying some of the basic locational forces, the model is useful in explaining the rate of growth of particular economic areas. This growth is obviously important to marketing executives because of the dynamic shifts in locational patterns such as those shown in Figure 43 that occurred between 1939 and 1954. Factory employment is a useful measure of the spatial dimension of demand for some products. The map in the lower part of Figure 43 is included to define the areas whose growth is described in the upper part of the figure. As will be seen, the greatest growth occurred in the Pacific region; this suggests that New England not only experienced a relative decline but an absolute decline as well.

The *significance* of these locational pattern shifts on *marketing decisions* is illustrated in the alleged experience of the automobile industry following World War II. The shipments of automobiles by the manufacturer to the dealers throughout the country were based upon prewar locations of population. As a consequence, a relative excess of automobiles was shipped to New England in the postwar period. This gave rise to the practice of an individual consumer buying a car, for example, in New England with the express purpose of driving it to the South, selling it, and making a handsome profit in the process.[10] As the automobile example suggests, location analysis is essential to an understanding of the geographic pricing problem discussed in Chapter 12.[11]

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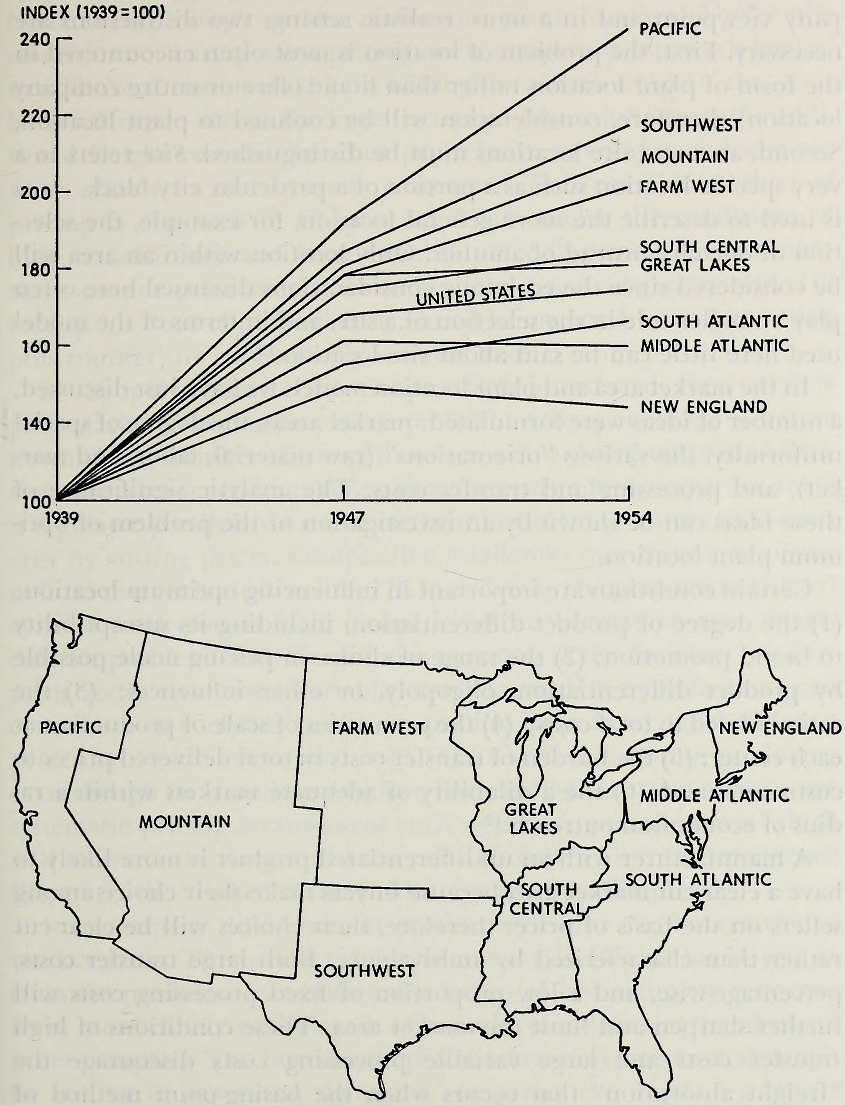
[10] A similar phenomenon, called "bootlegging," has occurred because of the auto manufacturers' pricing systems. See Chapter 12.

[11] For an application to the basing-point problem, see Carl Kaysen, "Basing Point Pricing and Public Policy," *Quarterly Journal of Economics,* LXIII (1949), 289–314.

FIGURE 43

GEOGRAPHIC CHANGES IN FACTORY EMPLOYMENT, 1939–54



Source: *Business Week*, August 13, 1955, pp. 78 ff.

The marketing manager must not only predict locational patterns of economic activity because they represent product markets, but he must also aid in making specific location decisions for his company.

This latter aspect will be considered next, and in the discussion, realism will be added to the simple locational model set out previously.

Company-Location Decisions. In discussing location from the company viewpoint and in a more realistic setting, two distinctions are necessary. First, the problem of location is most often encountered in the form of plant location rather than home office or entire company location; therefore, consideration will be confined to plant location. Second, area and site locations must be distinguished. *Site* refers to a very specific location such as a portion of a particular city block. *Area* is used to describe the more general location, for example, the selection of one city instead of another. Only location within an area will be considered since the economic considerations discussed here often play a smaller role in the selection of a site, and in terms of the model used here little can be said about site location.[12]

In the market area and plant location models we have just discussed, a number of ideas were formulated: market areas, the degree of spatial uniformity, the various "orientations" (raw material, labor, and market), and processing and transfer costs. The analytic significance of these ideas can be shown by an investigation of the problem of optimum plant location.

Certain conditions are important in influencing optimum location: (1) the degree of product differentiation, including its susceptibility to brand promotion; (2) the range of choice in pricing made possible by product differentiation, oligopoly, or other influences; (3) the ratio of fixed to total costs; (4) the economies of scale of production at each center; (5) the burden of transfer costs in total delivered prices to customers; and (6) the availability of adequate markets within a radius of economical outreach.[13]

A manufacturer with an undifferentiated product is more likely to have a clear-cut market area because buyers make their choice among sellers on the basis of price; therefore, their choices will be clear-cut rather than characterized by ambivalence. Both large transfer costs, percentage-wise, and a low proportion of fixed processing costs will further sharpen and limit the market area. These conditions of high transfer costs and large variable processing costs discourage the "freight absorption" that occurs when the basing-point method of pricing is used. "Basing-point pricing" describes a highly collusive arrangement in which all competitors set their price to each customer by adding to an agreed-up base price the *railroad freight* cost (irrespective of shipping method actually used) from an agreed-upon location (basing point) to the customer's plant location. Under the conditions of basing-point pricing, each competitor can reach farther to additional customers if he is willing to "absorb freight," that is, if he is willing to accept the lower net price that results from the additional freight cost that he must pay relative to competitors who are more closely located to these customers. This complex method of pricing is discussed in Chapter 12. Thus, under the conditions of high transfer costs and large variable processing costs, the manufacturer cannot price much below his total processing costs and still recoup his "out-of-pocket" costs; in addition, total costs (processing plus transfer) increase sharply with distance.

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[12] See, however, Richard L. Nelson, *The Selection of Retail Locations* (New York: F. W. Dodge Corp., 1958).

[13] Roland S. Vaile, E. T. Grether, and Reavis Cox, *Marketing in the American Economy* (New York: The Ronald Press Co., 1952), pp. 525–26.

If oligopoly (described in Chapter 6) is introduced, then overlapping market areas become more probable. Oligopoly is the situation in which the number of competitors are so few that their pricing decisions are interdependent. When there are only a few companies, there is a greater possibility for one of them to steal into another's market area by cutting prices. Competitive retaliation may follow, resulting in fluid market boundary lines. If, in addition, the proportion of fixed costs to total costs is high, competition can become an exceedingly difficult problem. This condition is common to the basic steel and cement industries. Since variable costs are small a manufacturer can contribute to company profits by pricing its product much below a price that would cover total costs. Thus he will continue producing even though he is undergoing loss. Such industries try to adopt some systematic pricing arrangement such as a basing-point system which will alleviate the danger of keen price rivalry. This interdependence illustrates the "linked market" idea described in Chapter 6.

Intercompany differences in product will blur the boundaries of market areas. The product differences make it difficult for buyers to compare products; in addition the brand of one company may conform more closely to the needs of some buyers than the brand of another company. The buyers who prefer a brand of a given design will be willing to pay extra; therefore, companies can demand a higher price, thus covering the additional transfer costs encountered by selling to these buyers.

Providing there are no compensating economies of scale in production, high transfer costs will limit the outreach of manufacturers because those manufacturers nearer the buyers will be able to offer a price advantage. The distant producers adjust to these circumstances in one of three ways: (1) by limiting their market radius, (2) by adopting zone or basing-point methods of pricing that will alleviate the burden of freight absorption, or (3) by establishing branch plants. Market radius can be limited by simply refusing to sell beyond a certain distance or by using an f.o.b.-seller method of pricing, which means that the buyer pays the transportation costs. Zone pricing and basing-point pricing permit some absorption of freight costs, but serve to set a limit on the amount. Both methods of pricing will be discussed in Chapter 12 in connection with geographic price differentials. By establishing branch plants, companies are able to gain the advantage of economies of scale in marketing, such as in national advertising, and still avoid the high transfer costs encountered in shipping great distances.

A common market situation today is a company which has (1) low transfer costs (percentage-wise), (2) produces a differentiated product, and (3) is a member of a highly oligopolistic industry. Under these conditions, the idea of a distinct market area becomes meaningless. Such a company can expand its geographic outreach without encountering major costs. Its differentiated product will probably conform better to the needs of certain buyers than the product of its competitors. These buyers will be willing to pay the slight extra cost of sending the brand a greater distance. If the condition of large economies of scale also exists, then market area boundaries will become even more indefinite. The lower costs of volume production will more than counterbalance the small increased cost of greater outreach.

The executive applies this analysis to his specific market, estimates sales revenue, incorporates his processing costs and transfer costs (including marketing outlays), evaluates each alternative location in terms of profit and chooses the optimal one. To the extent that the conditions in his situation lead to a well-defined market area, the choice of the optimal location is unambiguous.

Wholesale market areas can be analyzed by examining the relative influence of each of the six conditions that were used in discussing plant location by manufacturers, and the reader is urged to try this as an exercise. Space limitations prevent such an explanation here.[14]

Urban Dimensions of Demand

Thus far the discussion of the spatial dimension was simplified by implicitly limiting it to the regional geographic area. Now we examine urban areas and to see the problem of the urban dimension of demand clearly we must define regions more precisely.

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[14] *Ibid.*, chap. xxvi.

An economic region can be defined as a relatively large geographic area characterized by the following: (1) one center of economic control, (2) greater internal homogeneity than would exist if it were merged with contiguous areas, (3) a characteristic group of exported products, and (4) a characteristic group of imported products.[15] The nine economic regions into which a number of federal government agencies divide the United States provide a concrete illustration of the concept of region. Regional change involves shifts among geographic regions and among urban areas within regions.

Urbanism is the tendency for a larger proportion of the population to live in cities. It has given rise to the large metropolitan areas, which can be said to constitute the "centers of economic control" mentioned above in the definition of "region."[16]

> The phenomenon of growth of cities to large size and the fact that large cities acquire unique attributes have given rise to a theory that major cities are focal points in the economic and social organization of modern industrial-commercial nations. . . . Not an insignificant aspect of the dominant role of the metropolitan centers is the fact that medium-size and small cities, as well as dispersed rural populations, appear to perform their functions with reference to the metropolitan centers, while they themselves exert a more limited and integrative influence upon the territory about them. Thus metropolitan centers are dominant conditioners of the physical environment in the modern industrial-commercial society, while the smaller urban places are subdominant environmental conditioners.

Static View of Urban Areas. "Metropolitan centers" as said earlier are the "dominant conditioners of the physical environment in the modern industrial-commercial society," while "smaller urban places" are said to be "subdominant." In line with this distinction, the Bureau of the Census in 1950 drew up "standard metropolitan areas," which have since come to be called technically "standard metropolitan statistical areas."[17]

> A standard metropolitan area consists of the county containing a central city of 50,000 or more inhabitants plus any adjacent counties that also appear to be metropolitan in character and socially and economically integrated with the central city.

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[15] *Ibid.*, p. 488.

[16] Donald J. Bogue, "Urbanism in the United States, 1950," *American Journal of Sociology*, LX (1954–55), 478–79.

[17] *Ibid.*, p. 479. For a more detailed description, see U.S. Bureau of the Census, *Census of Population: 1950*, Vol. I, *Number of Inhabitants* (Washington, D.C.: U.S. Government Printing Office, 1952), pp. xxxiii–xxxv.

The locations of these standard metropolitan areas are coming to be widely used by companies in planning their marketing efforts because a large proportion of the nation's population and income is concentrated in them (see Figure 44). In 1960, 64 per cent of the total United States population was located in the 212 standard metropolitan areas. Of the approximately 28 million increase in population that occurred in the decade 1950 to 1960, 85 per cent took place within these areas.[18]

The "census tract" is another useful concept in describing urban areas for marketing purposes.[19]

> Census tracts are small areas, having a population generally between 3,000 and 6,000, into which certain large cities (and in some cases their adjacent areas) have been sub-divided for statistical and local administrative purposes. . . . The tract areas are established with a view to approximate uniformity in population with some consideration of uniformity in size of area, and with due regard to physical features. Each tract is designed to include an area fairly homogeneous in population characteristics.

Currently, 80 cities in the United States and Puerto Rico have been subdivided into tracts. Most of these tracts have adjacent areas that have also been subdivided. Many population characteristics are tabulated by the Bureau of Census according to census tracts. These characteristics include, among others, sex, race, nativity, education, income, age, marital status, employment status, occupation, and ownership of certain appliances. From these census tracts, inferences can often be made about the relation between certain population characteristics and the purchasing behavior of consumers which are useful in locating retail stores especially supermarkets.[20] The tracts are probably of even greater significance for market research studies that make use of the local market as a sampling unit because they facilitate the use of probability sampling—a method of sampling that provides information of measurable reality.[21] Finally, since the boundaries of the tracts remain fixed, tract characteristics may be compared over a period of time to reveal the kinds of changes that are occurring in the metropolitan areas.

Intra-Urban Movements. One of the most significant locational developments in marketing has been "the trek to the suburbs." The magnitude of this shift can best be shown by an examination of the standard metropolitan areas. The band of population lying outside the central city of a standard metropolitan area is termed the "metropolitan ring." As Table 20 shows, since 1920 these rings have been growing more rapidly than the central cities. Columns 6 and 7 indicate that from 1900 to 1920 the central cities grew faster. During the decades of 1930 and 1940, however, the rate of growth of the metropolitan rings was more than two-and-one-half times the rate of growth experienced by the central cities.

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[18] U.S. Department of Commerce, *Changing Metropolitan Markets 1950–1960* (Washington, D.C.: U.S. Government Printing Office, 1961), pp. 4–6.

[19] *Census of Population: 1950, op. cit.,* p. xxxvi.

[20] For a brief discussion of the use of census tracts in locating supermarkets, see *Cost and Profit Outlook* (Philadelphia: Alderson and Sessions, July, 1956), pp. 1 ff.

[21] James H. Lorie and Harry V. Roberts, *Basic Methods of Marketing Research* (New York: McGraw-Hill Book Co., Inc., 1951), especially pp. 185–92.

TABLE 20

GROWTH DATA FOR CENTRAL CITIES AND RINGS OF STANDARD METROPOLITAN AREAS, RETROJECTED TO EARLIER CENSUSES, 1900–1950

CENSUS YEAR (1)	NUMBER OF S.M.A.'s (2)	PER CENT OF U.S. POPULATION		RATE OF GROWTH DURING PRECEDING DECADE			PER CENT OF TOTAL U.S. POPULATION GROWTH CLAIMED BY S.M.A.'s DURING PRECEDING DECADE	
		(3) Central Cities	(4) Rings	(5) Metropolitan Areas, Total	(6) Central Cities	(7) Rings	(8) Central Cities	(9) Rings
All S.M.A.'s, 1950...	162*	32.8	24.0	21.8	13.9	34.7	31.6	49.0
Principal S.M.A.'s:								
1950............	147	32.3	23.8	21.8	13.7	34.8	30.7	48.6
1940............	125	31.6	19.5	8.3	5.1	13.8	22.8	34.9
1930............	115	31.8	18.0	27.0	23.3	34.2	43.3	32.9
1920............	94	28.9	14.8	25.2	26.7	22.4	46.8	20.8
1910............	71	25.0	12.7	32.6	35.3	27.6	37.4	15.7
1900............	52	21.2	10.7	...	...	...	...	...

* In order to retroject data for 1950 back to the earlier periods for comparative purposes, it was necessary to reorganize certain standard metropolitan areas in New England, and in the process some were combined.

Source: Donald J. Bogue, "Urbanism in the United States, 1950," *American Journal of Sociology,* LX (1954–55), Table 5, 480. (Copyright, 1955, The University of Chicago.)

From the standpoint of marketing industrial products, an important question is whether manufacturing has shifted to the suburbs. The evidence suggests that no trend is discernible in this respect. "Between 1939 and 1947 metropolitan manufacturing suburbanized in some parts of the Nation, and centralized in other parts."[22]

The relative movement of population to the rings (suburbs) away from the central cities has been of great interest to marketing executives. One of the significant effects is that it has given rise to the department-store problem.[23] The department store arose at the end of the

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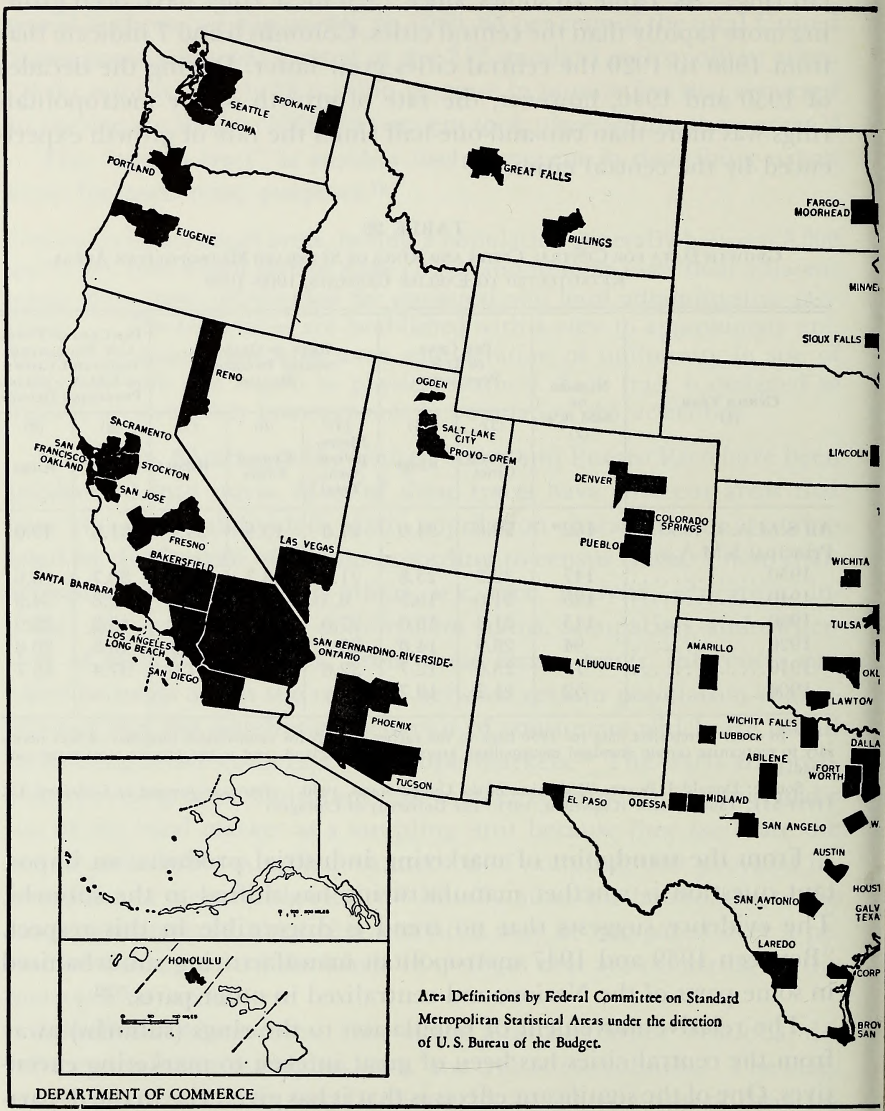
[22] Evelyn M. Kitagawa and Donald J. Bogue, *Suburbanization of Manufacturing Activity Within Standard Metropolitan Areas* (Chicago: Population Research and Training Center, The University of Chicago; and Miami: Scripps Foundation for Research in Population Problems, Miami University, 1955), p. 32.

[23] For a description of its significance, see Editors of *Fortune, The Changing American Market* (Garden City, N.Y.: Hanover House, 1955), chap. iv.

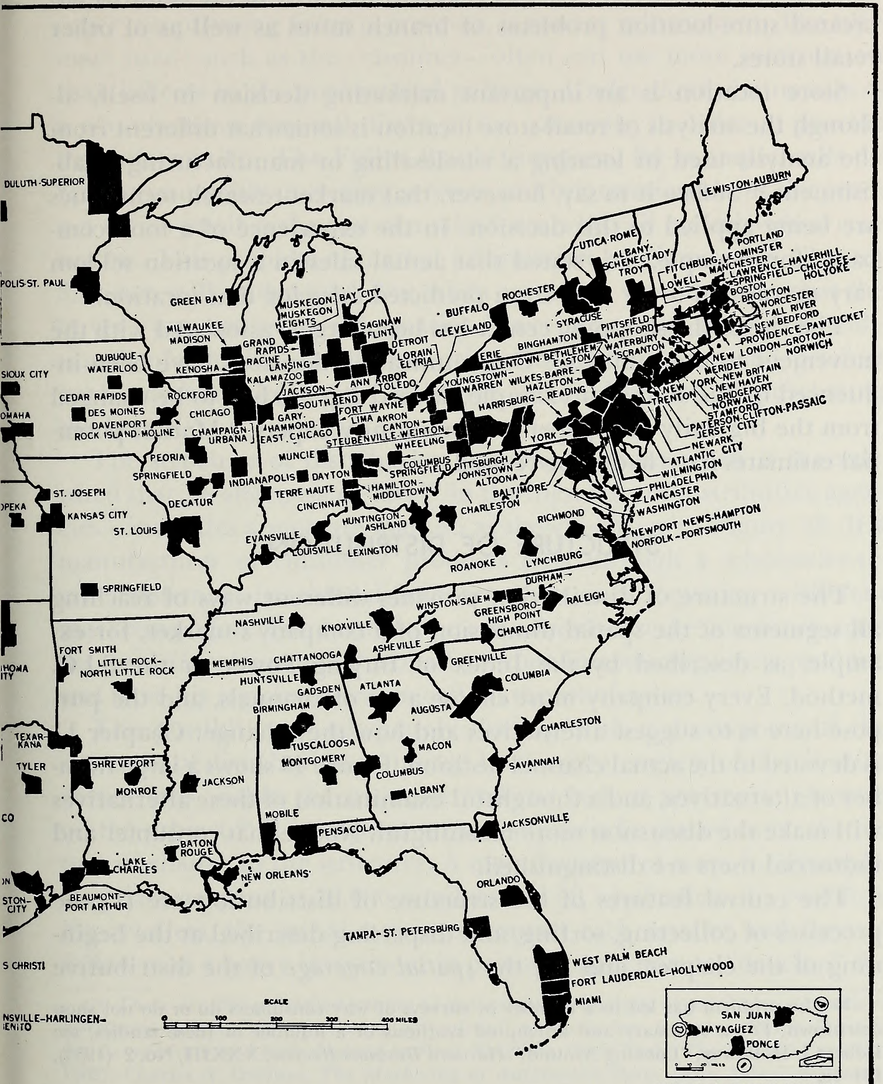
FIGURE 44

STANDARD METROPOLITAN STATISTICAL AREAS OF THE UNITED STATES, 1960


SEATTLE
TACOMA
SPOKANE
PORTLAND
EUGENE
GREAT FALLS
BILLINGS
FARGO-MOORHEAD
MINNE
SIOUX FALLS
RENO
OGDEN
SALT LAKE CITY
PROVO-OREM
SACRAMENTO
SAN FRANCISCO-OAKLAND
STOCKTON
SAN JOSE
FRESNO
BAKERSFIELD
SANTA BARBARA
LOS ANGELES-LONG BEACH
SAN DIEGO
LAS VEGAS
SAN BERNARDINO-RIVERSIDE-ONTARIO
PHOENIX
TUCSON
DENVER
COLORADO SPRINGS
PUEBLO
LINCOLN
WICHITA
TULSA
OKL
LAWTON
AMARILLO
ALBUQUERQUE
WICHITA FALLS
LUBBOCK
DALLA
ABILENE
FORT WORTH
EL PASO
ODESSA
MIDLAND
SAN ANGELO
W.
AUSTIN
HOUST
GALV TEXA
SAN ANTONIO
LAREDO
CORP
BROV SAN
HONOLULU
Area Definitions by Federal Committee on Standard Metropolitan Statistical Areas under the direction of U. S. Bureau of the Budget.
DEPARTMENT OF COMMERCE

Source: U.S. Bureau of the Census, *Census of Population, 1960* (Washington, D.C.: U.S. Government Printing Office, 1961), p. S6.

nineteenth century largely in response to urbanism, but now "suburbanism" has caused it to lose market share. The extent of the effect varies from area to area, of course, with perhaps New York feeling the greatest change. For the first ten months of 1952, for example, al-


DULUTH-SUPERIOR
POLIS-ST. PAUL
GREEN BAY
MUSKEGON
MUSKEGON HEIGHTS
BAY CITY
SAGINAW
FLINT
MILWAUKEE
MADISON
GRAND RAPIDS
RACINE
LANSING
KENOSHA
KALAMAZOO
JACKSON
DUBUQUE
WATERLOO
SIOUX CITY
CEDAR RAPIDS
ROCKFORD
OMAHA
DES MOINES
DAVENPORT
ROCK ISLAND-MOLINE
CHICAGO
CHAMPAIGN-URBANA
GARY-HAMMOND-EAST CHICAGO
SOUTH BEND
FORT WAYNE
DETROIT
LORAIN-ELYRIA
ANN ARBOR
TOLEDO
LIMA
AKRON
CANTON
STEUBENVILLE-WEIRTON
WHEELING
PEORIA
SPRINGFIELD
DECATUR
MUNCIE
INDIANAPOLIS
DAYTON
COLUMBUS
SPRINGFIELD
TERRE HAUTE
HAMILTON-MIDDLETOWN
CINCINNATI
ST. JOSEPH
)PEKA
KANSAS CITY
ST. LOUIS
EVANSVILLE
LOUISVILLE
LEXINGTON
HUNTINGTON-ASHLAND
CHARLESTON
SPRINGFIELD
BUFFALO
ROCHESTER
CLEVELAND
ERIE
YOUNGSTOWN-WARREN
SYRACUSE
BINGHAMTON
UTICA-ROME
ALBANY-SCHENECTADY-TROY
PITTSFIELD
HARTFORD
WATERBURY
SCRANTON
ALLENTOWN-BETHLEHEM-EASTON
WILKES-BARRE-HAZLETON
READING
HARRISBURG
YORK
PITTSBURGH
JOHNSTOWN
ALTOONA
BALTIMORE
LEWISTON-AUBURN
PORTLAND
FITCHBURG-LEOMINSTER
MANCHESTER
LOWELL
LAWRENCE-HAVERHILL
SPRINGFIELD-CHICOPEE-HOLYOKE
BOSTON
BROCKTON
WORCESTER
FALL RIVER
NEW BEDFORD
PROVIDENCE-PAWTUCKET
NEW LONDON-GROTON-NORWICH
MERIDEN
NEW BRITAIN
NEW YORK
NEW HAVEN
TRENTON
BRIDGEPORT
NORWALK
STAMFORD
PATERSON-CLIFTON-PASSAIC
JERSEY CITY
NEWARK
ATLANTIC CITY
WILMINGTON
PHILADELPHIA
LANCASTER
WASHINGTON
NEWPORT NEWS-HAMPTON
NORFOLK-PORTSMOUTH
RICHMOND
ROANOKE
LYNCHBURG
DURHAM
RALEIGH
WINSTON-SALEM
GREENSBORO-HIGH POINT
CHARLOTTE
NASHVILLE
KNOXVILLE
ASHEVILLE
GREENVILLE
FORT SMITH
LITTLE ROCK-NORTH LITTLE ROCK
IHOMA ITY
MEMPHIS
CHATTANOOGA
HUNTSVILLE
GADSDEN
ATLANTA
COLUMBIA
BIRMINGHAM
AUGUSTA
CHARLESTON
TEXARKANA
TUSCALOOSA
MACON
TYLER
SHREVEPORT
MONTGOMERY
SAVANNAH
COLUMBUS
MONROE
JACKSON
ALBANY
CO
MOBILE
PENSACOLA
JACKSONVILLE
BATON ROUGE
LAKE CHARLES
NEW ORLEANS
)N
STON-CITY
BEAUMONT-PORT ARTHUR
ORLANDO
TAMPA-ST. PETERSBURG
S CHRISTI
WEST PALM BEACH
FORT LAUDERDALE-HOLLYWOOD
MIAMI
NSVILLE-HARLINGEN-ENITO
SCALE
0 100 200 300 400 MILES
SAN JUAN
MAYAGÜEZ
PONCE

BUREAU OF THE CENSUS

though apparel-store sales were up 1 per cent in the New York metropolitan area, department-store sales were down 6 per cent.[24] Opening suburban branch stores appears to be the solution for the department stores in the large cities. In the smaller cities, there is considerable question as to whether the traffic will be heavy enough to justify a branch in the suburbs.[25] As this suggests, the shift to the suburbs has created store-location problems of branch stores as well as of other retail stores.

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[24] For an analysis of the New York City area, see "What Is Wrong with Department Stores," *Monthly Review of Credit and Business Conditions,* Federal Reserve Bank of New York, December, 1952, pp. 176–81.

Store location is an important marketing decision in itself, although the analysis of retail-store location is somewhat different from the analysis used in locating a wholesaling or manufacturing establishment.[26] Suffice it to say, however, that market-research techniques are being applied to this decision. In the experience of a food company, for example, it is stated that actual sales in a location seldom vary more than 5 per cent from predicted sales for that location.[27]

The rise of the shopping center has been largely associated with the movement to the suburbs.[28] Communication decisions have been influenced by the shift. For example, advertising has had to be changed from the big daily newspapers to community papers.[29] Market potential estimates have had to be revised.

STRUCTURE OF DISTRIBUTION

The structure of distribution provides different ways of reaching all segments of the spatial dimension of a company's market, for example, as described by the Index of Buying Power or the S.I.C. method. Every company must choose a set of channels, and the purpose here is to suggest alternatives and how they change; Chapter 11 is devoted to the actual channel decision. Figure 45 shows a large number of alternatives, and a thoughtful examination of these alternatives will make the discussion more meaningful. Notice that consumer and industrial users are distinguished.

The central features of the structure of distribution are (1) the processes of collecting, sorting, and dispersing described at the beginning of the chapter; and (2) the *spatial coverage* of the distributive agencies that in performing these processes make up the structure. Another complicating feature, however, is market information. The ultimate user—such as the consumer—often can use more information than inheres in the product and package. Under these circumstances a manufacturer may sell direct to the consumer in order to provide this information. The Fuller Brush Company, for example, sells direct—presumably providing services and information about the product which justifies the cost of a sales force who call on individual consumers. This problem of market information, as discussed in Chapter 3, is not well understood, but when we say as we did above that the buyer "can use more information," we mean that supplying additional information—additional triggering, information and product cues—modifies the buyer's behavior in the direction of purchasing the brand.

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[25] The problem has led to a number of surveys of why consumers do or do not shop downtown. For a summary and attempted synthesis of a number of these studies, see Robert J. Holloway, "Looking Around," *Harvard Business Review,* XXXIII, No. 2 (1955), 131–40.

[26] Nelson, *op. cit.;* and Vaile, Grether, and Cox, *op. cit.,* chap. xxvii.

[27] Donald E. Stout, "Research and Control in a Modern Supermarket, *Journal of Industrial Economics,* III (1954–55), 68. For a brief and popular statement of the location practices of Safeway Stores, see *Business Week,* December 26, 1953, pp. 90-98.

[28] For a study of shopping centers and some of the reasons for them, see C. T. Jonassen, *The Shopping Center Versus Downtown* (Columbus: Bureau of Business Research, Ohio State University, 1955), especially pp. 97–100.

[29] See *Business Week,* February 5, 1955, pp. 134 ff.

The structure of distribution becomes relevant when it is recognized that, in effect, *each* "level" in the hierarchy of distributive agencies constitutes a separate market, as shown earlier in Figure 38. If a manufacturer of consumer products sells through a wholesaler-retailer system, he has three different markets, each requiring a different marketing effort. For example, he can *advertise* to the consumer, send his *specialty salesmen* to the retailers when introducing a new product, and have his *regular salesmen* call on the wholesalers.

The possibility of adequately dealing with a description of the structure of distribution is limited by the great variety of distributive institutions within the structure and the lack of systematic research on the subject.[30] It is important that emphasis be placed upon the nature of change in the structure. A manufacturer of soap, for example, may have as many as 20,000 retailers and 50 wholesalers. In establishing retailers, the initial step is to contact each retailer and then to follow with a heavy investment in promotional effort to "develop" the

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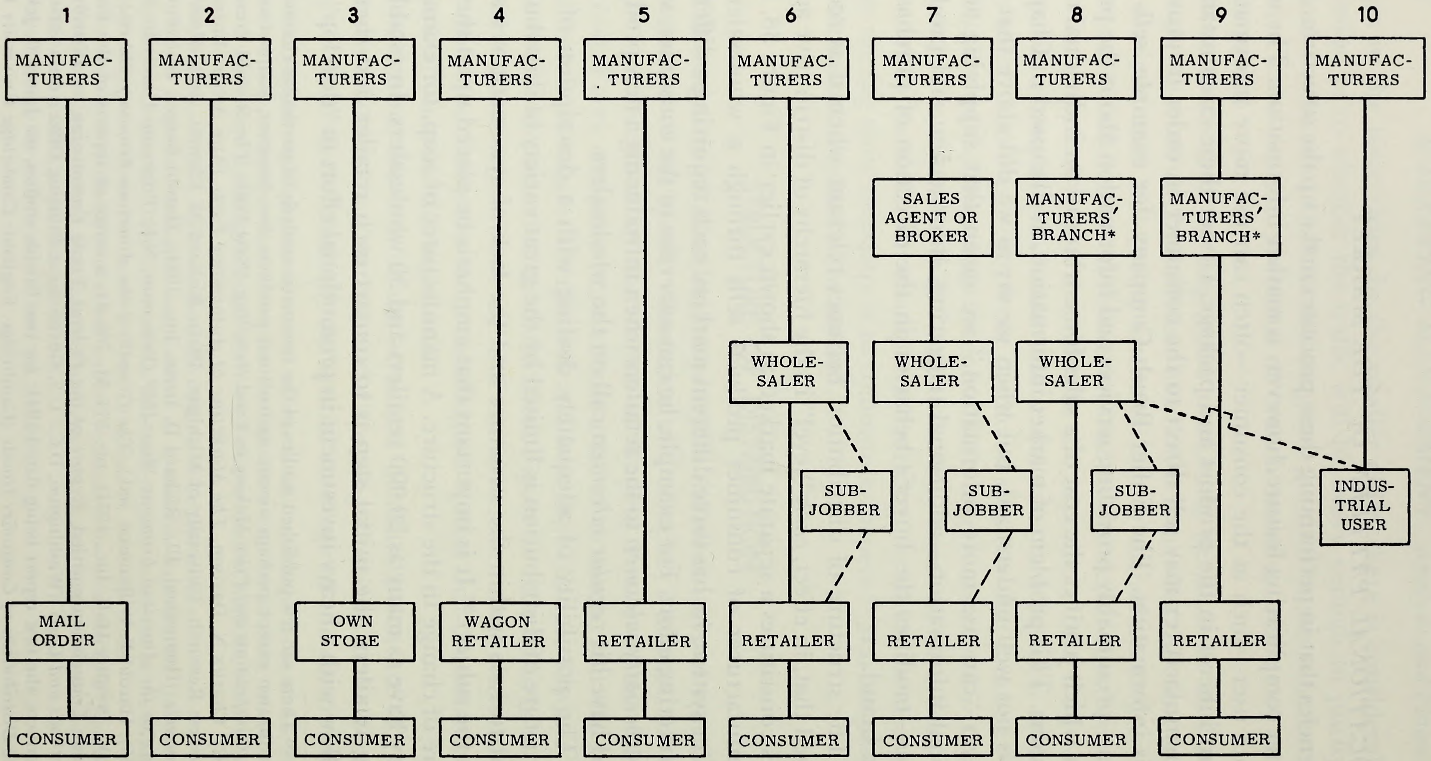
[30] There are few published studies of the systematic analysis of particular channels of distribution except perhaps among agricultural products. See, however, Ralph Cassady, Jr., *Competition and Price Making in Food Retailing* (New York: The Ronald Press Co., 1962); Charles N. Davison, *The Marketing of Automotive Parts* (Ann Arbor: Bureau of Business Research, University of Michigan, 1954); Richard M. Clewett (ed.), *Marketing Channels* (Homewood, Ill.: Richard D. Irwin, Inc., 1954); Harold Barger, *Distribution's Place in the American Economy Since 1869* (Princeton, N.J.: Princeton University Press, 1955); Harold F. Williamson (ed.), *The Growth of the American Economy* (2d ed.; New York: Prentice-Hall, Inc., 1951), pp. 511–31, 766–84; a series of reports of the Federal Trade Commission entitled, *Report of the Federal Trade Commission on Distribution Methods and Costs* (Washington, D.C.: U.S. Government Printing Office), on a variety of products, the first report being dated 1944; for two British studies, see James B. Jefferys, *The Distribution of Consumer Goods* (Cambridge, England: Cambridge University Press, 1950); and James B. Jefferys, *Retail Trading in Britain, 1850–1950* (Cambridge, England: Cambridge University Press, 1954).

FIGURE 45

MANUFACTURERS' ALTERNATIVE MARKETING CHANNELS


1
2
3
4
5
6
7
8
9
10
MANUFAC-TURERS
SALES AGENT OR BROKER
MANUFAC-TURERS' BRANCH*
WHOLE-SALER
SUB-JOBBER
INDUS-TRIAL USER
MAIL ORDER
OWN STORE
WAGON RETAILER
RETAILER
CONSUMER

* A manufacturer's branch is owned by the manufacturer.

Source: Adapted from John R. Bromell, *Primary Channels of Distribution for Manufacturers,* Business Information Source, U.S. Dept. of Commerce (July, 1950), p. 3.

retailers. Thus, in making his choice of channels, the marketing manager must predict the changes that will occur, because once having made his choice, he will either continue to use these channels for a number of years or pay expensively for designing and organizing a new system of distribution.

The following questions will be discussed: (1) Why are channels a key problem in planning? (2) What are the current alternatives that make up the distributive structure of the American economy? (3) Why do these alternatives change? Chapter 11 is devoted entirely to the problem of channels in the design of a marketing plan.

Channels in Market Planning

The role of marketing channels in a marketing plan may not be obvious at first, particularly if the reader is unfamiliar with consumer-goods marketing. The channel for industrial-goods marketing is often simple because the manufacturer's representative calls directly upon each ultimate user. At the other extreme is the manufacturer selling a widely used, frequently purchased consumers' product. He will seldom sell directly, and he may establish channels that have three or four kinds of middlemen as links in his distributive chain. He may have significant decisions to make at each level. Even though he does not own the product at all levels of the channel, he may recommend the price set by the owner at each level. Consequently, he may be setting three or four different prices on an item rather than only his immediate price. The spatial differentiation of demand also affects the choice of marketing channel: the manufacturer will probably use a different channel to sell to the more urbanized geographic areas of the United States than to the rural areas. For both the industrial-goods manufacturer and the producer of consumers' goods, the system of channels chosen by each should be the best under the given circumstances. The importance of channels is suggested by the fact that Deepfreeze Appliance went out of business in late 1955 because of its inability to obtain adequate distribution. A reasonable inference is that its product line was too narrow.[31] A distributor can usually deal more economically with one supplier than with a number of suppliers, but he can take advantage of this economy only to the extent that the supplier's product line is "wide" enough to serve all his needs.

A marketing manager employs three basic criteria in choosing a system of marketing channels: coverage, promotion, and cost. Market coverage that makes the product widely available—conformance to the spatial dimension of demand—is important, particularly among consumer goods. The margin of preference that a buyer usually has for one brand is often slight. If the brand of his choice is not available, he may buy another available brand rather than expend energy to search elsewhere or time to wait for his retailer to receive the desired merchandise.

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[31] *Advertising Age,* December 26, 1955, pp. 1 ff.

Aggressive promotion is clearly a desirable characteristic of a middleman since it relieves the manufacturer of promotional expenditures, and under some conditions, promotional effort by the middleman is more effective. There are many examples which reveal the effectiveness of retailer promotion relative to manufacturer promotion. The consumer often depends upon the retailer's statement as to which is the better brand. The retailer can display one brand conspicuously and hide a competing brand. There are "impulse" products which the consumer is likely to buy only when he sees them displayed.

Related to the middleman's promotional effort is the whole gamut of his services. The service feature is perhaps most conspicuous in consumer durable items, particularly automobiles, where the performance of a product is largely determined by the quality of the retailer's servicing. There are many other services by which a middleman may increase customer preference for his establishment and which therefore contribute to the sale of the products that he stocks.

All the benefits in the way of availability, promotion, and other services that a middleman may offer are obtained at a cost to the manufacturer—the manufacturer must weigh the benefit against the cost. The trade discount from list price that a manufacturer grants a middleman is a rough quantitative measure of this benefit, but in a concrete case the discount may be far from an accurate measure. It is to the advantage of the manufacturer when the middleman charges as low a price as possible in order to compete effectively with his rivals. There are two exceptions to this generalization. The manufacturer does not want the middleman to bankrupt himself; continuing relations are important to the manufacturer. Also, he wishes to avoid perverse "price-quality association"—the tendency for the buyer to relate price and quality.

Finally, the manufacturer is usually faced with a certain amount of conflict among parts of his marketing channels. One of the most common examples is at the retail level. In order to attain satisfactory availability to the ultimate user, the manufacturer may be forced to make use of low-volume, independent stores which generally offer a high level of services but which, because of the low turnover and extensive service, must have a large markup. At the same time, a chain outlet will promote the manufacturer's product more aggressively at a smaller margin. The lower prices offered to the customer by the chain stores creates competition and is a source of irritation for the small independent retailer who may go so far as to discontinue handling the brand.

The wide range of kinds of middlemen suggests that in applying the basic considerations of market coverage, promotion, and cost, manufacturers have come to remarkably different conclusions in selecting the best combination of middlemen. The extreme heterogeneity of markets at any one time in the United States, combined with the constant state of change in the distributive structure, is the major source of this wide variety of middlemen.

One of the complications in discussing middlemen is that prices are almost universally stated in the form of "discounts" from "list prices." The list price is typically, though not necessarily, the price that the manufacturer expects the retailer to charge the ultimate user. The manufacturer, then, will state his price to the wholesaler as "list minus 40 per cent," and the wholesaler will state his price to the retailer as "list minus 25 per cent." Thus, if the list price is $10, the wholesaler pays $6.00 and the retailer pays $7.50. In this example the wholesaler's and retailer's "margins" are 20 per cent and 25 per cent, respectively. This method of computing prices at each level is described as "markup on price." If the price in this example was computed at each level by adding to the *cost* instead of subtracting from the list price, the wholesaler would have a 25 per cent margin and the retailer a 33⅓ per cent margin. This is referred to as "markup on cost." It must be emphasized that "margin" as used here bears no relation to marginal analysis discussed in Chapter 7.

Description of Structure of Distribution

The current distributive structure of the American economy is an exceedingly complex network.[32] An indication of its complexity was conveyed by Figure 45 which portrayed some of the alternative channels.

Description of the structure can be in terms of dollar volume, number of people employed, number of ownership units, or number of establishments at each level. Also, all products can either be lumped together or shown separately in the description. Figure 46 shows a portion of the 1929 structure of distribution which is in terms of dollar volume flow through a particular type of retail outlet, namely variety stores, and includes only two products—food and clothing.

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[32] See Vaile, Grether, and Cox, *op. cit.,* pp. 128–33.

The horizontal distances on the chart measure dollar volumes. For example, in 1929, the dollar volume of food made available at the producers' level (top of Figure 46) was about the same as that for clothing. About one third of each commodity—food and clothing—did not pass through retail stores at all, and another one third passed through the nonvariety type of retail outlet, such as—in the case of food—independent grocery stores and grocery chain stores. Since transportation costs are a significant item in the value of the products, they are added to the producers' sales volume. Approximately two thirds of the food and clothing sold through variety stores passed through wholesalers, and one third went directly to retailers. By adding the amount of "value added" by the wholesalers and retailers, the magnitude of food and clothing items purchased in variety stores can be derived. "Value added" by a middleman is the difference between the amount that he pays for the goods that he purchases and the revenue he receives in sales.

The lack of data prevents anything resembling a complete picture of the structure at any point in time; however, if a mass of data was available, its study would not be worthwhile for our purposes. Barger, in his study of distribution, worked with 32 types of retail outlets, 20 kinds of wholesalers, and 27 commodity groups. This means that there were 17,280 possible channels (32 × 20 × 27).[33] Although not all of these channels were used, other channels arose because a large number of the commodities were supplied by more than one industry. In addition, Barger did not analyze separately the broker-agent level of middlemen.

Definition of Middlemen. There are three general types of middlemen: (1) agent middlemen who do not take legal title to the goods they handle for the producer, (2) wholesalers who take title and sell to retailers, and (3) retailers who take title and sell to the user. There are numerous kinds of middlemen within each of these general types, each filling a specific need for a client who may be either a manufacturer or another middleman. Exceptions to this terminology are found in practice. The American Marketing Association attempted to obtain

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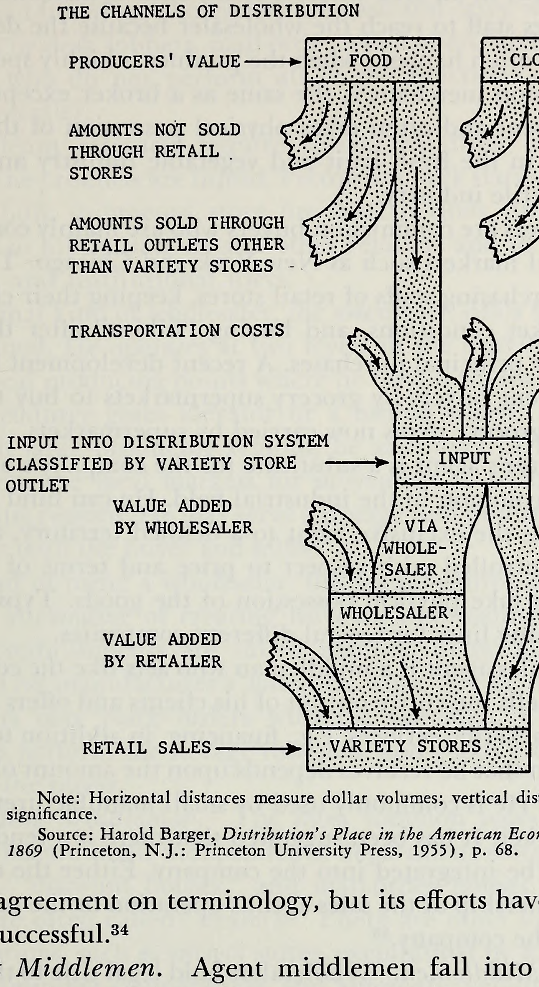
[33] Barger, *op. cit.*, pp. 66–67.

FIGURE 46

Segment of American Structure of Distribution, 1929


THE CHANNELS OF DISTRIBUTION
PRODUCERS' VALUE
FOOD
CLOTHING
AMOUNTS NOT SOLD THROUGH RETAIL STORES
AMOUNTS SOLD THROUGH RETAIL OUTLETS OTHER THAN VARIETY STORES
TRANSPORTATION COSTS
INPUT INTO DISTRIBUTION SYSTEM CLASSIFIED BY VARIETY STORE OUTLET
INPUT
VALUE ADDED BY WHOLESALER
VIA WHOLE-SALER
WHOLESALER
VALUE ADDED BY RETAILER
RETAIL SALES
VARIETY STORES

Note: Horizontal distances measure dollar volumes; vertical distances lack significance.

Source: Harold Barger, *Distribution's Place in the American Economy Since 1869* (Princeton, N.J.: Princeton University Press, 1955), p. 68.

general agreement on terminology, but its efforts have not been completely successful.[34]

Agent Middlemen. Agent middlemen fall into five categories: brokers, commission merchants, resident buyers, manufacturer's agents, and sales agents.

The function of a broker is to bring the buyer and seller together. Brokers serve more than one client; they may represent the buyer or the seller. Brokers do not handle the goods; in fact, they seldom see anything more than a sample. Usually they cannot bind their client, which means that every transaction must be approved by the client before it is binding. The broker is paid a commission for his services. A broker is useful in an area where a seller finds it uneconomical to use his own sales staff to reach the wholesaler because the demand is too sparse. This often happens when the product is highly specialized.

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[34] "Marketing Definitions," *American Marketing Association* (Chicago, 1960).

The commission merchant is the same as a broker except that he can bind his client and often takes physical possession of the goods. He is common in the fresh fruit and vegetable industry and also is found in the textile industry.

Resident buyers are commission buyers who are mainly confined to the large central markets such as New York and Chicago. They supplement the purchasing staffs of retail stores, keeping their clients informed of market conditions, and buying "fill-ins" after the stores have made their principal purchases. A recent development has been the use of resident buyers by grocery supermarkets to buy the large number of nongrocery items now carried by supermarkets.

A manufacturer's agent is a substitute for the company's own salesman, and he is common in the industrial field. He can bind his principal, and he has the exclusive right to a defined territory, although he is closely controlled with respect to price and terms of sale. He may or may not take physical possession of the goods. Typically, he sells noncompeting lines for several different companies.

Finally, the sales agent is a middleman who acts like the company's sales force. He sells the entire output of his clients and offers the company various marketing services, e.g., financing, in addition to selling. The commission that he receives depends upon the amount of services that he renders. He is commonly used by small manufacturers selling to a distant market. It has been suggested that there is a tendency for a sales agent to be integrated into the company. Either the company may assume ownership of the sales agent's operation or the sales agent may take over the company.[35]

Wholesaling Middlemen. Wholesalers hold legal title to the goods. They are mainly full-function or service wholesalers, limited-function wholesalers, petroleum bulk stations and terminals, and assemblers. In practice the wholesalers of consumer durable products are called "distributors." Merchant wholesalers are sometimes called full-function wholesalers or jobbers because they provide a wide range of services, viz., carry stocks, deliver, grant credit, "break bulk," and send out salesmen. Wholesaling middlemen who sell goods to industrial buyers are often called industrial supply houses or *mill supply houses.*

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[35] Vaile, Grether, and Cox, *op. cit.,* p. 243.

Limited-function wholesalers are cash-and-carry wholesalers, drop shippers or desk jobbers, mail-order wholesalers, and truck or wagon jobbers who do not perform all of the functions of the full-function wholesaler.

Petroleum products require special handling facilities because most of the products are liquid. Petroleum bulk stations and terminals receive bulk shipments, store for short periods, and disperse their product to filling stations and other retailers and to industrial, commercial, and institutional users.

The final kind of wholesaler, the assembler, deals in farm products and seafood. He operates at two levels in the distributive chain. He serves local producing points where he buys from the producers, such as at a country grain elevator or a fishing wharf. At intermediate points in large producing regions, he assembles carloads and truckloads from the local markets for movement to terminal markets in consuming regions. He may serve a storage function and often finances either or both the buyer and seller.

Instead of using a wholesaler, the manufacturer may take the important alternative of creating his own wholesaling establishments. These establishments are called manufacturers' sales branches or offices. The manufacturer's salesmen work out of these offices, and customers may place orders with the salesmen. Usually the sales branches perform the storage function, and goods are delivered from them to the buyer.

Retailing Middlemen. The most common types of retailing organizations are small independents, department stores, chains, supermarkets, "discount houses," and mail-order houses. In practice, retailers are often called "dealers." There are other kinds of retailing organizations, such as variety stores, exemplified by Kresge and Woolworth, consumer co-operatives, and automatic vending.[36]

The definition problem becomes more acute in discussing the retailing portion of the distributive structure, but for our purposes reasonably workable definitions will suffice.

"*Independent*" refers to ownership—each establishment is separately owned as contrasted with the chain store where several establishments are under one ownership. Small independent retailers vary considerably in the extent of service they provide, but they tend to be "full-service," offering clerks, delivery, and credit. They usually do not promote aggressively. They obtain their share of the retail market through proximity to the consumer and through services that often emphasize the element of "personal touch."

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[36] For a description and analysis of automatic vending, see Martin V. Marshall, *Automatic Merchandising* (Boston: Graduate School of Business Administration, Harvard University, 1954).

Although it is reasonably correct to label a *department store* an "independent," the situation is changing. Department stores appear to be moving in the direction of multiple-unit ownership. When centralized ownership exists, the degree of centralized control varies considerably; some of the ownership groups are very loose. A department store handles a large variety of apparel lines, house furnishings, and housewares. The merchandise is arranged by departments; purchasing, as well as accounting, is carried on by departments. The U.S. Census Bureau sets a minimum of 25 employees as the criterion for classifying an establishment as a department store. Department stores are usually located downtown, but there is a strong trend toward the addition of branches in outlying shopping centers. Extensive services are provided, and "charge accounts" and "return privilege," as well as delivery, are emphasized. With many exceptions, department stores are characterized by an atmosphere of "prestige," and their promotion, though extensive, is consistent with this atmosphere.

Chains are multi-unit retailing organizations that combine the wholesaling and retailing operations under one management; they usually maintain a high degree of centralized control. The extent of service rendered a manufacturer varies considerably among chains. At one extreme are Sears, Roebuck and Company and Montgomery Ward and Company, which offer a fairly complete line of services; at the other extreme are chain drug concerns, which provide little service. Chains tend toward aggressive promotion with emphasis upon price. They often make use of "private brands"—the practice of having a manufacturer produce for them under their brand instead of the manufacturer's. There are local, regional, and national chains.

The *supermarket,* a development of the 1930's is typical in the food field. It is characterized by large size and a location which provides extensive parking space. Self-service is emphasized. A wide range of food and related grocery store products is stocked, and there has been a tendency toward offering more nongrocery items. Aggressive promotion is used to support this operation which strives toward low expenses.

Since World War II the *discount house,* characterized mainly by price competition and limited service, has arisen, with the distinguishing characteristic of a lower markup than the more conventional retailers. It has been confined largely to consumer durable products, particularly appliances, but it is continuing to expand into soft goods, drugs, and cosmetics.[37] Because of its emphasis on price and limited service, the discount house has probably been most damaging to small independent stores and department stores.

In a sense the discount house is a counterpart of the supermarket. The position of the discount house differs, however, because its line of products has largely caused the "discount house" name to be tinged with illegality. The products are branded; thus, the manufacturer is free to practice resale-price maintenance or "fair trading," which means to set the price charged the consumer. Resale-price maintenance was made possible by the Miller-Tydings Act, passed in the 1930's,[38] which provides that states may pass laws permitting the manufacturer engaged in interstate commerce to fix the retail price of his product if it is branded and advertised. The retailer becomes subject to court action if he disregards the manufacturer's price, but most discount houses have avoided court action because few manufacturers appear to have been zealous in their enforcement efforts. The fact that the discount houses have been able to obtain extensive supplies of highly advertised brands suggests that the manufacturers of some products have not attempted to prevent their brands being sold through such outlets. "Fair trading" has probably provided a major stimulus to the development of discount houses.

Voluntary Chains. The voluntary or co-operative chain is the final distributive organization of major significance in designing channels of distribution. The manner in which this form has emerged helps to explain its role in the distributive structure. In some instances, a group of retailers wished to centralize their purchases in order to increase their bargaining strength and to cut freight costs through more carload purchases. The freight rate is less for carload (C.L.) shipments. Group buying can be accomplished on a very informal basis, as by designating certain of the members to buy particular products for all of the members. This loose arrangement is called a *buying group.* If the group wishes the advantages of more centralized control, the solution is to organize or to purchase a wholesaling concern as a group. The group then becomes a *co-operative chain.* Finally, in order to insure his market, a wholesaler can organize a group of retailers who will buy primarily from him in return for the merchandising services and advice that he offers. The Ben Franklin Stores affiliated with Butler Brothers of Chicago are an example of this latter type of retailing organization, which is called a *voluntary chain.*

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[37] For a review of the current status of the discount house, see *Fortune,* May, 1962, pp. 118–20; and *Fortune,* July, 1962, pp. 143–47.

[38] The practice was given new support by the McGuire Act in 1952. See Chapter 9 for a more extensive discussion.

Distributive Functions. A useful means of visualizing the structure of distribution is to consider the functions that must be performed in the process of distributing products and who can perform these functions most economically. This functional analysis enables us to examine the distribution process more precisely, thus gaining a fuller understanding of the process than was provided by the simple collecting-sorting-dispersing analysis used earlier in setting the stage for this discussion of the structure of distribution. The production of a good and its consumption are usually quite separated both in space and time; therefore, someone must perform the functions of transporting the product, storing it, financing it, and taking the many varieties of risk incurred in the distributive process. The need for transporting the good is obvious. Perhaps less obvious is that, typically, a product remains for a period of time in one or more warehouses before it is used; thus it incurs all of the costs entailed in storage, such as interest cost and insurance against fire, pilferage, and other types of risk. Throughout the entire distributive process someone owns the product, and the owner's funds will be tied up in the product, thus foregoing the opportunity to use these funds elsewhere. There are many noninsurable risks, a common one being the possibility of a loss resulting from a price decline. In a few instances, such as with agricultural commodities, it is possible to limit the risk of a price decline through "hedging," but such products make up a small part of the marketing manager's problems.[39] Another function of the distribution process is to inform potential buyers as to when and where the product is available, which is accomplished in part through advertising and personal selling. For many products, the process of distribution is more complex because the product becomes physically changed en route to the ultimate user. Packaging is the simplest and most common change occurring in the distributive process.

The question is often raised as to whether the current structure of distribution is performing these functions as economically as some alternative structure might. Assuming a reasonably competitive market, it can be inferred from the existence of different kinds of middlemen that they are performing the distributive functions economically, at least in a rough sense.[40] Observation suggests that most markets involving middlemen can be called reasonably competitive, particularly since it is relatively easy to enter the distributive trades.[41] Yet legal restraints probably contribute to distributive inefficiency; some of these are discussed in Chapter 9.

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[39] Charles F. Phillips and Delbert J. Duncan, *Marketing Principles and Methods* (4th ed.; Homewood, Ill.; Richard D. Irwin, Inc., 1960), chap. xx.

Distributive efficiency is exceedingly difficult to measure statistically. Barger's estimates of changes in output per man-hour in distribution relative to agriculture, mining, and manufacturing are available, but an absolute measure of efficiency is still lacking. Barger concludes that output per man-hour in distribution rose 1 per cent yearly over the period 1869 to 1949. This estimate clearly understates the increase because the quality of the services has improved in many cases. In the same period output per man-hour rose annually 1.9 per cent in agriculture, 2.6 per cent in mining, and 2.3 per cent in manufacturing. "The less rapid rise in distribution is confirmed by the relative sparsity of technological innovations when comparison is made with the other industries mentioned."[42]

The essential nature of the middleman's services is emphasized because, over the years, he has come in for considerable criticism, particularly by economic reformers and the farmers. In the United States the farmer has often been the most vociferous, often asking why a loaf of bread should be as expensive as it is considering the price that he receives for his wheat. Periodic government investigations into the margins of middlemen have occurred as a result of the agricultural viewpoint. In summary, the middleman is often charged with providing services that the consumer neither needs nor wants. When examined, however, the charges usually arise because of differences among consumers as to what is desired. For example, a person patronizing a store that offers free delivery service may resent having to help pay for the service if he does not find the service useful to him personally.

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[40] For a discussion of the nature of retail competition, see Bob R. Holdren, *The Structure of a Retail Market and the Market Behavior of Retail Units* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1960).

[41] The theory of monopolistic competition which appeared in 1933 provided an analytic basis for doubting the efficiency of the distributive trades. Later developments, however, largely under the heading of "workable competition," raised questions about the validity of the conclusions derived from the theory of monopolistic competition. For a statement of the static partial equilibrium model, see Edward H. Chamberlin, *The Theory of Monopolistic Competition* (5th ed.; Cambridge, Mass.: Harvard University Press, 1946); for some of the questions raised by "workable competition," see J. M. Clark, "Competition: Static Models and Dynamic Aspects," *American Economic Review,* XLV (1955), Supplement, 450–62.

[42] Barger, *op. cit.,* p. 52.

There are continuous shifts in who performs these functions. It has been estimated, for example, that during the period 1869 to 1929 retail margins increased from 32.7 per cent to 37.0 per cent. This suggests that the retailing level absorbed additional functions if efficiency did not change. The major reason for this increase was a greater tendency for the manufacturer to bypass the wholesaler and sell directly to the retailer. This shift was due to the rise of the chain store, department store, and mail-order house rather than to the then-conventional retail outlet making less use of a wholesaler.[43] The supermarket has been able to shift some of the transportation, storage, and financing functions to the consumer. In some instances a manufacturer has been forced to perform the storage function by establishing warehouses when the wholesaler's services were discontinued.

The Ford Motor Company in absorbing a greater portion of the financing from its dealers illustrates this trend of shifting functions. The company agreed to a change in billing methods whereby payment for a car is due from the dealer at the time of delivery to the dealer rather than at the time the car is shipped from the factory. General Motors absorbed from the dealer the cost of a part of automobile servicing when it agreed to pay the entire cost of "warranty adjustment," which is the servicing that occurs during the original guaranty period for new cars. The dealer continues to perform the service, however.

Although changes in the nature of the functions being performed do occur, most of the changes in the distributive functions appear to come about because of shifts in *who* performs the functions. Shifts in the agencies performing the functions are discussed because it is these changes that constitute the dynamics of the structure of distribution that are of great importance to the marketing manager. Also, by far the greater portion of marketing channel decisions arise because of changes in the structure of distribution rather than from the original need to establish channels.

Structural Change

Changes in the distributive structure occur slowly, but since marketing channel decisions involve long-term commitments, the marketing manager still must forecast the long-term movements. Forecasting requires a knowledge of the sources and rate of change. Structural change occurs in response to basic changes in the economy, but it is exceedingly diverse among products. From an examination of the process of structural change, basic economic changes can be related to structural change, and structural change related to both the channel and nonchannel decisions of the company. This description of the process, however, is intended to illustrate and to suggest the type of situation that may occur rather than to present a specific case analysis. The discussion will be confined to consumer goods because industrial goods typically present a simpler problem and there is less information available on industrial goods.

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[43] *Ibid.*, pp. 95–96.

Structural Change Illustrated. Out of the many changes that have occurred in the structure of distribution, at least one long-term trend emerges in a number of products. This trend is the tendency for the manufacturer of consumer goods to absorb a larger proportion of the increasing marketing burden by selling directly to the retailer. The retailer tends to maintain little more than a large display and a storage room for a wide variety of packaged products, and he attempts to make his establishment a model of engineering efficiency. The trend, although generally accepted by students of the subject, has not been well documented by research.[44]

The trend explains some of the current channel problems faced by the manufacturer. A good example is the current dilemma of many manufacturers who fear that if they sell to discount houses, the established retailers will discontinue handling their products. If they do not sell to discount houses, their volume of sales will suffer seriously. In the heat of argument, it is often forgotten that similar problems have long plagued the manufacturer and the middleman. In 1890 it was the department store that was "illegitimate" and legislation was being sponsored by the established "legitimate" retailers to legislate it out of existence. In 1900 it was the mail-order house; in 1930, the chain store. Today it is the discount house. A reasonable inference is that tomorrow there will be a similar phenomenon but with a different name.

For this trend to be portrayed meaningfully, it must be abstracted from a significant part of the total economic development in the United States since 1900. This is accomplished by setting forth two models to represent the extremes, with most actual situations being somewhere in between. The models do not conform precisely to reality, but they contain the essential characteristics of the phenomena being described.

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[44] See, however, Barger, *op. cit.*, especially chap. v. Also see a series of four impressionistic but objective articles by E. B. Weiss, *Advertising Age*, April 18, 25; May 2, 9, 1955. For a detailed description of the developments in Great Britain, see Jefferys, *Retail Trading in Britain, 1850–1950, op. cit.*

One model is termed the "rural general store," which can be considered representative of the American retail structure in 1900 and is still to be found in the more remote sections. The other model of distributive institution, labeled the "supermarket," embodies the characteristics significant in the trend, although currently it is representative only of the food trade. Even the food supermarket has come to have nonfood departments of which two, health and beauty aids and housewares, are particularly significant.[45] The appliance discount house is a more recent and dramatic development, but since the reader may be less familiar with the discount house, the supermarket will be used as the basis for discussion. Essentially the same characteristics are embodied in the large chain drugstores. Also, at least one example of the supermarket type of operation has appeared in hardware retailing.[46] Here it is characterized by self-service and large size.

Rural General Store. The rural general store provides almost all the items needed by its customers—food, clothing, tobacco, agricultural and carpentry tools, etc. The number of items offered is not great compared with the supermarket type of retail institutions, however, because the standard of living of its customers is low and a large proportion of the items making up this standard is produced at home rather than purchased in a store. The general store offers extensive services. Customers' purchases may be financed for as long as a year. Almost every item sold is handled by a clerk, and packaging is a major task.

Brands are relatively unimportant. If the item is branded at all, the consumer takes whatever brand the retailer stocks. Thus, the retailer, rather than the consumer, makes the choice among brands. The retailer possesses an exceedingly intimate knowledge of his customers, which is an aid in planning his purchases. Moreover, careful planning is not essential because the items are relatively imperishable, turnover is low, and consumer preferences for particular brands do not exist.

Engineering efficiency in the physical flow of items, particularly insofar as it saves the consumer's time, is not important because the shopping trip has social implications for the consumer which is almost as significant as the economic purpose of obtaining goods. The local retail store is a center of social relations.

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[45] *Business Week,* June 4, 1960, pp. 45–50.

[46] *Business Week,* September 8, 1956, pp. 76–78.

Changes in method of store operation come very slowly, since the consumer has no easily accessible alternative place to purchase other than perhaps mail order, which is somewhat less convenient and does not serve his social needs. The market is so small that economies of scale prohibit more than one store in an area; thus, competition is not available to provide an impetus to change. Lack of convenient transportation prevents the buyer from going to another community. Because of his relative social isolation, the consumer has only limited access to new ideas; therefore, he does not demand change.

The sources of supply for the general store are a number of wholesalers, located at some distance, each of whom regularly supply a portion of the retailer's needs. Very few of the wholesalers that supply the general store purchase directly from the manufacturer, and there may be even as many as three or four intervening middlemen.

Supermarket. The supermarket, which may be independently owned or part of a chain, offers a greater absolute number of products than does the general store, although it is largely confined to satisfying a small proportion of its customers' total needs. It carries a number of the more widely demanded brands of each product, for example, coffee, of which there may be eight different brands.

Few services are offered by the supermarket. In many instances, as a result of the manufacturer's advertising, the consumer knows precisely which brand he will buy before entering the store. If the brand is not available, he may go elsewhere. If the consumer has not made up his mind prior to entering the store as to which brand he will buy, he chooses from among the brands on display according to their location, appearance, information given on the label, and price. The important point is that the retailer exerts little control over which brand the consumer will purchase, and therefore over which manufacturer's brand will be stocked. In buying food and similar small items, the customer ambles through the store, placing his choices in a cart which is then rolled out through the check-out line. He pays for his purchases in cash. About the only service a clerk provides is to tell the customer where items may be located, to take his money, and to perform the limited packaging function of putting everything into one or two large sacks.

If the store is most modern, the customer's task may be even simpler. Display cases are equipped with pushbuttons which the customer presses for the desired item. Alternatively, the displayed item is numbered and a correspondingly numbered IBM card is selected by the customer and handed to the clerk who places the card in a machine. Either way, the item is dropped from its storage place to an endless belt which conveys the item, along with all others selected, to the check-out counter.[47]

For the larger appliances, delivery and installation services may be offered, in which case the customer will pay extra for them. More likely, the service will be provided by a commercial service company, the distributor, or the manufacturer, rather than the retailer.

The function of the supermarket is basically an engineering and transportation feat. Relative to the general store it handles an enormous tonnage of products. Large quantities, perhaps two or three carloads of items, are purchased at a time in order to secure quantity discounts and to save on shipping costs. This tonnage makes it economically possible to use mechanical equipment as an aid in handling the products. The items are packaged in the most convenient quantities so that a complete box of items is placed on the shelf at one time, which further encourages the use of mechanical equipment. Not only is it possible to be efficient in an engineering sense, but the supermarket operator has no choice but to be efficient. A few extra miles of driving in the family car provides the consumer with a number of available alternative sources. As a result of mass communication and social contacts, the consumer is a well-informed buyer. He needs much information, however, because many of the products are complex.

Forecasting demand in order to plan purchases is a problem. The retailer can know little about his customers personally, and forecasting is complicated by consumer preferences for particular brands. Rapid stock turnover is essential to profit, however. Although it is expensive to carry a heavy inventory, properly timed purchases may permit buying at lower prices. Among fresh and frozen foods, perishability sharpens the forecasting problem. Forecasting errors resulting in shortages can be corrected through a rush order, but this too is costly. The volume of sales is such, however, that careful analysis of sales will reveal the relative speed at which each brand moves through the store, and these data can be helpful in forecasting demand. To the extent that the retailer has a choice, he uses an effective criterion in deciding the items to stock. This criterion is in the form of "contribution to profit per square foot of shelf or floor space."

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[47] *Business Week,* July 28, 1956, pp. 61–62; and *Printers' Ink,* January 11, 1963, p. 13.

Given the margin and the rate of flow of an item, the item can be quickly evaluated against alternative items in a manner that is workable though not precise, since differences in costs of handling among items are omitted.

Middlemen-Manufacturer Relationships. The difference in the roles of the middlemen and the producer in the general store model and supermarket model is significant to the marketing manager. The general store, its wholesalers, and their suppliers jointly performed almost the entire marketing function, leaving the manufacturer free to concentrate on production. The retailer made the choice for the consumer in that the consumer bought whatever manufacturer's brand the retailer stocked. The retailer handled the packaging problem which, in the form of product decision, is now critical for the manufacturer.

When the wholesaler was the only link between the manufacturer and the retailer, he was a full-function wholesaler. He established relations with the manufacturer, made his products available to the retailer, and sometimes financed the manufacturer. A careful study of the Los Angeles grocery market offers quantitative evidence of developments. In 1920 the entire Los Angeles market was served by full-function wholesalers only, but by 1946 their share had fallen to 16 per cent. Limited-function and specialty wholesalers had taken 18½ per cent of the market; retailer buying co-operatives took 30½ per cent; chain stores took 29 per cent; and direct sales by the manufacturer to the retailer took 6 per cent.[48]

In the supermarket type of operation, the manufacturer carries much more of the marketing function. Through consumer surveys and sales experiments, the manufacturer determines consumer preferences, the "best" product, and predicts the rate of flow of his brand. Informative and appealing packages are used. Through national advertising the manufacturer establishes a reputation for a product of a certain quality, which must be maintained. If a mistake in production is made, he must be ready to rectify it immediately. The items are packed in sizes appropriate to the retailer's needs, these needs are largely determined by the rate of consumption of a product and by the requirements of mechanical handling equipment.

The wholesaler rarely finances the manufacturer. To the extent that the consumer does not finance himself, he is financed by a specialist company (financing company), seldom the retailer.

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[48] Ralph Cassady, Jr., and Wylie L. Jones, *The Changing Competitive Structure in the Wholesale Grocery Trade* (Berkeley and Los Angeles: University of California Press, 1949), p. 26. For an analysis of the position of the wholesaler between 1869 and 1929, see Barger, *op. cit.*, Table 20, p. 70; Table B-5, pp. 132 ff.

The promotion and availability of a new product must be closely co-ordinated because the retailer has to be convinced of the product's relative profitability before he is willing to devote shelf space to its display. Should the manufacturer's promotion be inadvertently delayed, the slow sales will suggest to the retailer that the item is not a desirable candidate for his shelves, and so he may remove it before the promotion is effective. Formerly, the retailer played an important role in the introduction of new products because extra promotional effort was required to overcome established consumption habits. Through the dramatic sales appeal made possible by modern mass communication, such as television, the manufacturer can introduce the product more economically.

The electrical appliance industry is illustrative of both the trend of marketing functions being shifted to the manufacturer and the consequences of this shift.[49] The current friction between the manufacturer and the retailer is caused by the shift of marketing functions from the retailer to the manufacturer and from the distributor to the manufacturer. The discussion in the industry mainly centers on the size of the margin that the retailer receives for his services and on the existence of the discount house. The manufacturer maintains that the markup is currently larger than is justified, but he is contradicted by the retailer.

Certain specific developments are responsible for the friction in the appliance industry. The manufacturer, through the warranty system, guarantees the appliance against defects for a certain period of time. He usually maintains service facilities, at least in the larger cities, or contracts with servicing companies to perform the task. In either case, the retailer is relieved of the responsibility. Demonstration and promotion in the retail store may have been essential before appliances were generally accepted, but now promotion is confined to interbrand competition, except with new products, and this is done largely by the manufacturer. Instructions on how to use the products are contained in an instruction book prepared by the manufacturer. When demonstrators are required in the introduction of new products, the manufacturer provides them. The emergence of the discount house method of selling appliances is, thus, not surprising.

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[49] For a statement of developments in the appliance industry in Canada, see Restrictive Trade Practices Commission, *Report on an Inquiry into Loss-Leader Selling* (Ottawa: Queen's Printer and Controller of Stationery, 1955), pp. 43 ff.

At the same time there is evidence that some of the functions are also being shifted from the appliance wholesaler (distributor) to the manufacturer. Through mixed shipments, Frigidaire, Westinghouse, and General Electric are saving freight costs by shipping appliances directly to the retailer in some cases. The wholesaler, in this case, however, continues all of his other functions except those involved in handling the goods physically.

Sources of Structural Change. It was mentioned earlier that the primary source of changes in the distributive structure was much the same as for general economic growth—mainly population and technology. Certain phases of the law, particularly the Robinson-Patman Act, have probably operated both to prevent and to encourage change, but this is best discussed in the next chapter.[50] Changes in consumer tastes probably have been a significant influence, but their effect is more difficult to evaluate.

Population. The growing number of consumers combined with a rising standard of living and the fact that consumers must purchase all they consume (rather than produce their own) have added to the tons of products that flow through retailing institutions.

Changes in the locational pattern of population have had major effects. First, the intraregional movements of population from the rural to the urban communities have led to highly concentrated consumer markets which have encouraged the development of supermarkets and discount houses, for example. It was indicated above that 85 per cent of the total population growth in the decade 1950–60 occurred in the standard metropolitan areas. The movement of population to the suburbs, however, has been less important perhaps in causing this trend. There is evidence in the carpet industry, for example, that the effect of the movement to the suburbs has operated in just the opposite direction. Bigelow-Sanford Carpet Company in 1954 adopted the innovation of selling through wholesalers rather than direct to the retailer, in part at least, because small suburban stores tend to buy from wholesalers rather than direct from manufacturers.

Second, the interregional population movements which led to great gains for California and Florida, for example, have had repercussions in the structure of distribution. The extent of these movements is shown in Figure 47. In the short period of ten years a few states gained population by more than 50 per cent while a few others actual-

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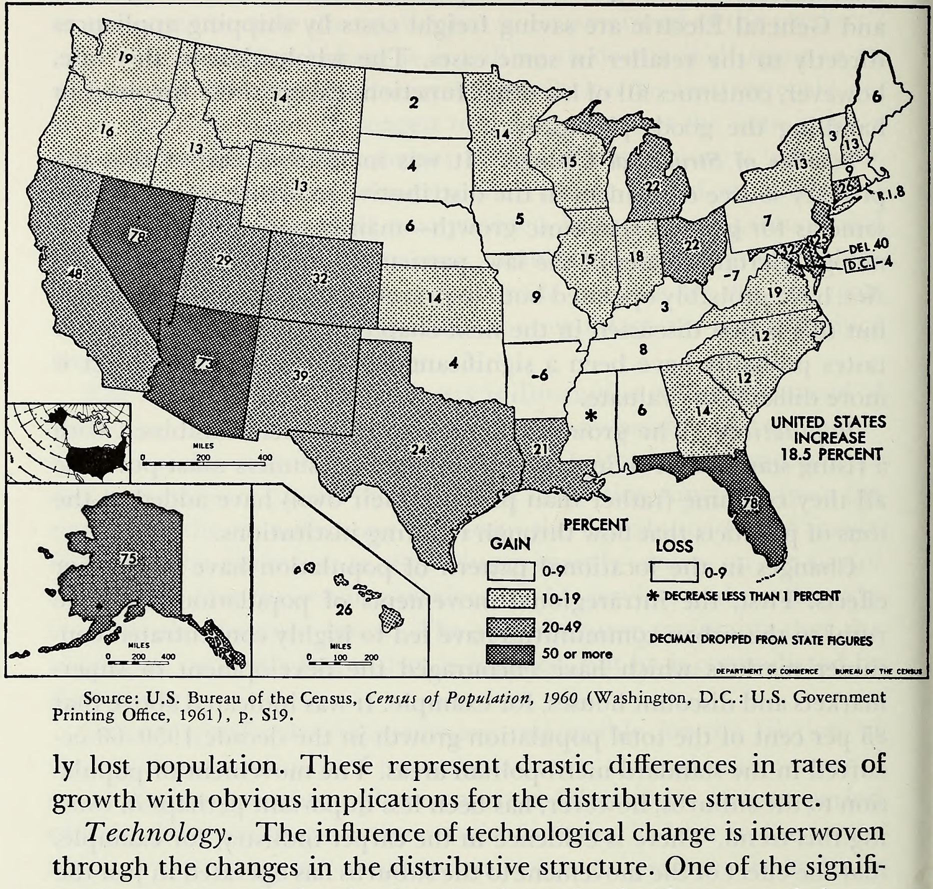
[50] See William F. Brown, "The Effect of Federal Legislation upon Marketing Channels," in Clewett, *op. cit.*, pp. 470–502.

FIGURE 47

PER CENT OF CHANGE IN TOTAL POPULATION BY STATES, 1950 TO 1960


19
14
2
6
16
13
14
3
13
4
15
13
9
26
R.I. 8
13
22
5
7
78
6
25
DEL. 40
29
32
15
18
22
32
D.C. -4
48
-7
14
9
19
3
73
8
12
4
39
-6
12
*
6
14
UNITED STATES
INCREASE
18.5 PERCENT
MILES
0 200 400
24
21
78
75
26
PERCENT
GAIN
0-9
10-19
20-49
50 or more
LOSS
0-9
* DECREASE LESS THAN 1 PERCENT
DECIMAL DROPPED FROM STATE FIGURES
MILES
0 200 400
MILES
0 100 200
DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS

Source: U.S. Bureau of the Census, *Census of Population, 1960* (Washington, D.C.: U.S. Government Printing Office, 1961), p. S19.

ly lost population. These represent drastic differences in rates of growth with obvious implications for the distributive structure.

Technology. The influence of technological change is interwoven through the changes in the distributive structure. One of the significant consequences of technology has been the development of almost the whole category of consumer durable goods on which the consumer typically spends 10 per cent and more of his disposable income.

Packaging methods and materials usually required in a self-service institution are a result of technology. Improved packaging, temperature control, slug rejection, and coin changing mechanisms have stimulated mechanical vending.

The development of modern mass communication, most recently exemplified by television, enables a single manufacturer to communicate economically with the national market. The use of "preselling" through mass communication by the manufacturer has been supported by the historically rising wage costs, which have limited the ability of the retailer to employ the quality of persons required for effective "floor selling." It has become more economical for the manufacturer to do the selling task mechanically in the sense of using mass communication than for the retailer to do it with "hand labor" at current wage levels. A new product can be introduced to the market with greater speed and economy because the newer methods of mass communication make dramatic presentations possible. The ease of introducing new products has encouraged efforts toward product "obsolescence" by the manufacturer, whereby he introduces a "new model" which causes the "old model" to be "outdated." Thus, extensive personal selling at the retail level is less necessary.

Improved technology of transportation has contributed in many ways to changes in the structure of distribution. Transportation cost historically has been a declining proportion of distribution costs; this decline has been almost enough to offset other forces that tended to increase distribution costs.[51] As a consequence, the consumer finds it possible to purchase a greater volume than he would otherwise. Although it appears difficult if not impossible to set forth a meaningful general conclusion as to transportation costs, particularly since World War I,[52] there have been a large number of innovations in transportation.[53]

> By 1920 . . . the United States transportation was already entering an unprecedented phase of technological change that even by 1950 . . . had yet to complete its course. The basic factor bringing about the change was the development of the internal combustion engine, which had been invented several decades before the turn of the century and which had been initially applied to highway vehicles just before and during the 1890's and to the airplane in the subsequent decade.[54]

Innovations in railroad transportation, largely under the stimulus of truck competition, were faster service, improved loading, greater protection of shipments against damage, truck service from the freight stations, piggyback, and containerization. As an example of the faster transportation, the railroads had long offered only third-morning service from Florida to New York and from Chicago to New York. Trucks often achieved second-morning delivery; finally, in 1950 the railroads initiated second-morning service for less than carload shipments.

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[51] Barger, *op. cit.*, pp. 57–58.
[52] Williamson, *op. cit.*, pp. 383, 678–79.
[53] *Ibid.*, pp. 667–68.
[54] *Ibid.*, p. 667.

Motorized highway transportation illustrates the effect of technological changes in transportation upon the structure of distribution. The automobile provides the consumer with transportation that makes it economically feasible for him to travel a distance to shop and also to transport his purchases instead of using delivery service. The truck has permitted suburban development to occur with less dependence upon rail lines. In the rural areas, the truck can be said to have wrought a revolution in transportation.

In the food sector of the economy, where the developments have been most consistent with the trend that has been discussed, refrigeration has been one of the major innovations.[55] Frozen foods and year-round fresh foods have become important products at the retail level. Their perishable nature has in itself urged directness of distribution channels. Also, these new products have contributed to the volume of purchases by the consumer. The home refrigerating unit has tended to increase the magnitude, and decrease the frequency, of the purchase of many food products, both changes contributing to the convenience a consumer obtains from patronizing a supermarket. At one time after World War II it seemed likely that home refrigeration might lead to significantly less food volume passing through retail stores because of the possibility that wholesalers would supply the consumer directly. This change has not developed, however. "The patterns of food distribution conceivably might change should a large proportion of American homes be equipped with their own freezing storage."[56]

Economies of Scale in Retail Store. Technology has operated to bring greater economies of scale to the store unit, and growing population has permitted us to take advantage of these economies. The scale of the single retailing establishment, however, should not be confused with the scale of the entire company of which the retailing establishment may be only a part. These distributive economies have been aided by the increased economies of scale that have characterized much of manufacturing.

Stigler contributes to an understanding of the general problem of economies of scale by applying more broadly the functional type of analysis that was used above in examining the distributive process. Building on Adam Smith's theorem that specialization of labor is limited by the extent of the market,[57] Stigler views the company as performing a number of functions. "For our purpose it is better to view the firm as engaging in a series of distinct operations: purchasing and storing materials; transforming materials into semifinished products and semifinished products into finished products; storing and selling the outputs; extending credit to buyers, etc."[58] From this functional point of view Stigler develops the hypothesis that as industry grows (as the market becomes less limited), vertical disintegration occurs and specialization is increased. Companies slough off certain functions because with the industry's growth, these functions become of such magnitude that specialist companies can perform them more economically. "Specialist companies" are companies that largely limit their activity to the function that has been discontinued by the original performing company.

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[55] Oscar Edward Anderson, Jr., *Refrigeration in America* (Princeton, N.J.: Princeton University Press, 1953), especially chaps. vii–x, xiv, xvi–xix.

[56] *Ibid.*, p. 301.

One relevant question raised by Stigler's thesis is: who has absorbed the functions that have been discontinued by the retail store? To what extent is it the manufacturer, another middleman, the consumer, or a specialist institution? The foregoing discussion of the trend emphasized the manufacturer. An example was cited in the appliance industry where the specialist repair agency has taken over the servicing function in some cases. Barger has pointed out that with food, consumer financing has been transferred to the consumer; with durables, consumer financing has been transferred to outside financial organizations.[59] Stigler discussed only the influence of specialization that comes from an expanding total market; in a concrete case, it may be partially or totally offset by other forces, but it is a highly useful concept to the executive in attempting to comprehend the changes that occur in the structure of distribution.

Finally, on a more specific point of the sources of structural change, the substitution of machines for labor has led to increased overhead costs. These greater overheads plus a growing public demand for security of employment encourages manufacturers to produce continuously. By absorbing more of the marketing function, the manufacturer may be more able to stabilize production. For example, in Chapter 5 it was noted that the amplitude of fluctuations in sales tends to be greater at each successive distributive level in the channel from the consumer to the manufacturer. Thus, by eliminating one of these levels the manufacturer can usually reduce the fluctuations in his sales.

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[57] George J. Stigler, "The Division of Labor Is Limited by the Extent of the Market," *Journal of Political Economy,* LIX (1951), 185–93.

[58] *Ibid.,* p. 187.

[59] Barger, *op. cit.,* p. 35.

Conclusion as to Structural Change. Perspective is needed in order to assess the significance of the trend from the general store model to the supermarket model. The movement toward the new type of distribution is slow. The newer methods of distribution representing this trend, such as the supermarket and the discount house, probably will not replace existing institutions, but supplement them. As with the department store, mail-order house, and chain store, the newer type of distributive unit will become a part of the existing distributive structure, and in the process it will probably modify its own character. The "price-cutting" atmosphere that pervaded the early department store, for example, is a far cry from the "quality" atmosphere it often cultivates today. There is some evidence that this change is already taking place in the discount house.[60]

This lack of radical changes in the structure is supported by Barger's study.[61] Marketing conditions are too diverse to permit one kind of distributive institution alone. Specifically, a portion of customers have always been willing to pay for extra services. This is particularly true for certain products such as style clothing. Also, immense areas of the United States are obviously too sparsely populated to lend themselves to highly centralized shopping, at least under forseeable conditions of technology of transportation. Although the tendency for the manufacturer to bypass the wholesaler has been stressed, evidence of radical change is lacking.

SUMMARY

Marketing channels add to the complexity of marketing decisions. The marketing executive selects marketing channels from the many possibilities offered by the structure of distribution. The relatively long period of commitment implied by a marketing channel decision forces the executive to predict future changes in the structure of distribution. In addition to the decision to use a given set of channels, the dynamic nature of the structure of distribution gives rise to tensions within the system, which may require many marketing decisions of a less drastic nature such as pricing, advertising, and personal selling. These possibilities emphasize the need for the marketing executive to be alert to changes in the structure, their sources, and their specific implications for his marketing plan.

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[60] "Dealers Find a New Enemy," *Business Week,* January 28, 1956, p. 61.

[61] Barger, *op. cit.,* especially, pp. 28–36 and 65–79.

One of the dominant sources of change in the structure of distribution is change in the spatial or horizontal dimension of demand. An analysis of the spatial dimension was presented as a general background for understanding the distributive structure. The specific purpose of the analysis was to provide: (1) information about the current location pattern in the United States; (2) some explanation of why this pattern is what it is; (3) tools for predicting geographic shifts in markets; (4) tools to aid in making such decisions as to where to locate warehouses; and (5) an understanding of the relevance of the spatial dimension of demand in controlling marketing activity through such means as the use of market potentials. To accomplish this purpose the three types of developments that have characterized the locational pattern of the American economy were discussed: regional changes, urbanism, and suburbanism.

Chapter 9

LAW AND THE MARKETING MANAGER

The American executive has recently been shaken by the electrical conspiracy in which seven highly respected top executives were committed to jail as common criminals. Thus, for him the law has now acquired a stark personal significance. He can no longer depend upon corporate anonymity to relieve him personally of public condemnation for these professional decisions.[1] The purpose of this chapter is to describe this particular law and others that influence the marketing executive's decisions. In this way we complete the survey of those features of the environment that the marketing executive must recognize and evaluate.

At least two points of view can be taken with respect to the relation between the marketing executive and the law. One point of view is that the marketing executive needs to know the law only in order to recognize the limits that it sets upon his actions in maximizing profits. Another point of view is that he should not only know the law but he should also know the effect of company actions upon the social welfare which the law is designed to protect. Although for the sake of simplicity the first view will be taken here, the reader should recognize that under some circumstances it is essential that the marketing executive understand the social-welfare implications of his decisions. For example, top management's own sense of social responsibility in part sets the framework within which the marketing executive attempts to maximize profits. As a member of a trade association committee or in some other capacity, the marketing manager may consult with legislative groups in formulating the law. In this capacity he should know the merits of the law from both the company and the social-welfare viewpoints.

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[1] For a thoughtful evaluation by a knowledgeable former executive, see Leland Hazard, "Are Big Businessmen Crooks," *The Atlantic Monthly*, CCVIII (1961), 57–61.

Although the law is usually thought of as limiting executive decision, this is not necessarily true. Some areas of the law enable the marketing executive to do things that in the absence of the law, he would not be able to do. For a period of time patents and copyrights may prevent competitors from duplicating the executive's product and entering his market. If competitors violate the law, the executive has access to redress by the courts. In this situation, however, the law may still be serving to limit competitors' decisions.

Reasons for the Law

A brief statement of the rationale behind the law affecting marketing will make the law more meaningful and encourage the marketing manager to deal with the problem constructively, rather than to dissipate his energies in complaining about "government interference." The large body of law affecting marketing decisions has been enacted to insure that company behavior is consistent with "public interest," which is identified with protecting the buyer from the seller, the seller from the buyer, and one competitor from another. Western liberal philosophy, which historically has guided American thought, holds that competition is the "natural protector." According to this belief, by pursuing his own interests the individual (or company) will best serve the social interests so that if competition exists, the best economic and political worlds will result.[2] Thus, the existence of competition is an essential premise.

The liberal philosophy is the basis for the point of view expressed in this book—the task of the marketing executive is in some sense to maximize profits. The lack of skill in performing this task adds to the imperfections or stickiness in the operation of the economic system. There may be, however, situations where the interests of society will not be served best by the unlimited freedom to follow the company's interest. In these instances it is the task of society to establish "rules of the game" that will guide executive decision toward action that is consistent with social welfare. Fortunately, instances of conflict between the private and social interest are the exception rather than the rule.

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[2] For a statement of the liberal economic philosophy, see Henry C. Simons, *A Positive Program for Laissez Faire* (Chicago: The University of Chicago Press, 1934).

The American attitude toward the lack of competition is analogous to our attitude toward "sin"—we are all "agin it"—but similarly we disagree widely in concrete applications. Because of the profound conviction about the "goodness" of competition and the corresponding "badness" of monopoly, by far the largest portion of the law concerned with marketing decisions is intended to restore, maintain, or bring about competition. Collectively, this body of law is called the "antitrust" law. One of the cornerstones of Western liberal philosophy that supports this view toward competition is classical economic analysis, which gives price the central role in the operation of the economy.[3] As might be expected, then, the major portion of the antitrust law is directed toward price decisions. The justification for this emphasis on price was suggested in Chapter 6.

Evolution of the Law

Between 1890 (when the Sherman antitrust legislation was enacted) and the decade of the 1930's, federal antitrust policy was directed against the large companies and against collusive agreements limiting price competition. Large holding companies were formed, called "trusts," which gave rise to the term "trust busting." It was the prevailing attitude that by breaking up the extremely large holding companies and eliminating collusive arrangements, price rivalry would suffice to insure the existence of desirable competition.

The high rate of business mortality that accompanied the business depression of the 1930's, however, gave public acceptance to the idea that extreme price rivalry can result in too much competition. Also, in that period there was a desire on the part of government to raise wages and limit hours. In return for having to pay higher wages, companies making up an industry were permitted under the National Industrial Recovery Act (1933) to make price agreements and to use the courts to enforce them. The privilege of agreeing with competitors on prices was short-lived, but it eased the transition in public thinking from a belief in "hard" competition to an acceptance of giving protection from competition in various ways.

This changing view toward competition was reflected in the passage of resale-price maintenance legislation. For some time independent retailers had been concerned with the rise of a new distributive institution, the chain store. Government aid was enlisted, and an amendment to the Sherman Act resulted.[4] This amendment, called the Miller-Tydings Act (1937), gave support to state resale-price maintenance laws, which permitted the manufacturer to set price floors in the resale of branded products by middlemen.[5] The amendment made the state laws applicable even to goods in interstate commerce. By approving the idea of resale-price maintenance, the federal government in effect modified its policy toward "price fixing" by permitting "vertical price fixing." Vertical price fixing is the agreement among firms operating at different levels of distribution, such as manufacturers and retailers, to charge the same or similar prices. Except during the life of the National Industrial Recovery Act the federal government has not in general condoned horizontal price fixing, which is price fixing among firms operating at the same level of production or distribution.

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[3] For a statement of the development of economic thought and policy in the United States for the period discussed here, see John K. Galbraith, *American Capitalism* (Boston: Houghton Mifflin Co., 1952), chaps. i–vi.

The other federal law that seeks to prevent price rivalry from becoming too competitive is the Robinson-Patman Act passed in 1936. This law makes it unlawful for sellers in interstate commerce to grant price differentials to particular customers or classes of customers except under certain specified conditions. The original purpose of the law was to prevent extreme price competition among resellers by limiting the discounts that they could receive when purchasing, because favorably discriminating discounts enable some wholesalers and retailers to price more advantageously than their competitors.

The evolution of federal antitrust policy is a consequence of the attempt to balance the interests of buyers, sellers, and competitors under the wide variety of situations that exist in the real world. In general, the policy is directed toward both the prevention of collusion and the existence of companies so large that they tend to monopolize the market. The ultimate aim of all antitrust laws, however, is to benefit the consumer by insuring that the forces of competition are effective. In many lines of production, a relatively large number of small companies competing together will give the best product at the lowest possible price; however, there are two exceptions to this general statement.

First, too much competition may not be good for the consumer.

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[4] For a summary of resale price maintenance, see Roland S. Vaile, E. T. Grether, and Reavis Cox, *Marketing in the American Economy* (New York: The Ronald Press Co., 1952), pp. 424–35.

[5] 50 Stat. 693, chap. 690, Title VIII. In 1952 the Miller-Tydings Act was modified by the McGuire Act, which is discussed later in this chapter.

It may result in the elimination of some of the companies, leaving only a few who can then charge excessive prices. It may result in chronically unstable prices, which discourages buying. Also, it may lead to wage cutting and deterioration of product quality. These consequences do not occur significantly except in periods of economic depression, however, and then the cutthroat competition is merely the reflection of a more fundamental economic problem instead of the result of competition per se. The second exception is that in some industries the economies of scale discussed in Chapter 7 are so great that the market is able to support only a few companies, and in extreme situations, the market can support only one company.

The fear of "too much competition," in part, gave rise to the Robinson-Patman and Miller-Tydings Acts—the depression-born legislation which limited price rivalry. A potent force behind the development of this legislation was the usually implicit political ideal that other things being equal, a " 'small business' is by virtue of its size more desirable from a social-welfare point of view than a 'big business.' "[6] "Bigness" implies power, and according to a prevalent American value that is "bad."

Sources of the Law

The "law" is actually a diffuse complex of limitations emanating from several political units. The federal government and the state governments are the most important, but occasionally, local laws (those of counties and municipalities) will be encountered. There are different kinds of law at each political level: (1) statutory law, which is legislation; (2) common law, which is the result of court decisions over a long period of time without legislative-policy guides; and (3) administrative law, which is administered by agencies such as the Federal Trade Commission. Various enforcement agencies exist; the Federal Trade Commission and the Antitrust Division of the Justice Department are the major agencies at the federal level. The law is also subject to change.

The precise implications of the law for marketing decisions may be exceedingly difficult to predict, and this uncertainty has led to charges of vagueness. The Federal Trade Commission's "trade practice conferences" were designed to meet this objection by collaborating with an industry and formulating a set of practices which will be considered unfair competition in that industry. In the conferences the Commission is concerned with practices that are unfair between competing sellers as well as between sellers and buyers. As an example of the latter, in drawing up rules for the radio-television manufacturing industry, the Commission stated that the word "used" must be placed on the glass container portion that is sometimes reused in making picture tubes. The conferences, which are usually originated by the industry, give rise to "trade-practice rules." The trade-practice rules are of two kinds: (1) those that seek to define practices that are illegal in terms of the particular industry, and (2) those that seek to define permissible practices which in the industry are often termed "a code of ethics."

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[6] Galbraith, *op. cit.,* pp. 27–34.

The previous discussion on how the law affects marketing decisions is definitely not intended as a substitute for competent legal counsel. It is offered to convey to the marketing manager a general idea of how his area of maneuver is affected by the legal framework within which he makes decisions. The issues are too complicated and subject to change for the marketing executive to hope to keep abreast of the developments.[7] An attorney's services are also essential in appraising the possibility of enforcement since one of the major determinants of the significance of a law is, of course, the extent to which it is enforced.

The following discussion, with the exception of "share of market," is organized according to types of marketing decisions because this is the way an executive typically looks at the problem. This method of organization has the disadvantage, however, of requiring a certain amount of repetition since some laws relate to more than one kind of decision.

SHARE OF MARKET

In Chapter 6, essentially three methods of studying competition were noted. First, the performance of an industry or company can be examined. Second, the competitive behavior of that industry, which consists of the "practices," can be investigated. Finally, the structure of competition can be the point of focus. In this third method of viewing competition, one of the key dimensions is the size-distribution of the competing companies, which can be measured by share of market.

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[7] Although outdated, a five-volume study of state laws written by the Marketing Laws Survey of the Works Progress Administration illustrates the magnitude and complexity of marketing laws at the state level alone: *State Antitrust Laws,* Vol. I (1940); *State Price Control Legislation,* Vol. II (1940); *State Milk and Dairy Legislation,* Vol. III (1941); *State Liquor Legislation,* Vol. IV (1941); and *Interstate Trade Barriers,* Vol. V (1942).

Share of market is often accepted by the antitrust enforcement agencies as evidence of monopolistic power since the Sherman Act prohibits the attempt to monopolize or the act of monopolizing.[8] After adducing from a large share of market that "monopoly" exists, the agencies will then proceed to prohibit certain practices—practices that would have been acceptable if the share of the market had not been excessive. Breaking up the company, called "divestiture," is an alternative course of action.

Usually the share-of-market criterion is applied to the single large company. A classic of antitrust law is the action against the Aluminum Company of America (Alcoa case),[9] which in the court's interpretation had a 90 per cent share of the market. The criterion may also be applied to a collusive arrangement. In 1951, three coat hanger manufacturers were each fined $10,000 for antitrust violations. It was charged that the three companies had 65 per cent of the market east of Colorado. As a consequence of the antitrust action the companies agreed not to follow certain practices such as fixing prices low enough to drive competitors out of business.[10]

An "acceptable" share has never been definitely established but has varied from case to case. A share of 80–90 per cent of the virgin aluminum ingot market was unacceptable in the Alcoa case. United States Steel Company's share of 48.5 per cent of their market was acceptable. The Eastman Kodak Company, which had 90 per cent of the color-film market, agreed to reduce its share of color-film processing to 50 per cent. More recently in the Brown Shoe Company merger case,[11] market shares were estimated city by city; for example, in 118 cities the combined shares of the merged companies (Brown and Kinney) exceeded 5 per cent in one type of shoe, e.g., children's or women's. The companies had integrated forward to the retail level. The Court said that the fragmented nature of retailing caused this 5 per cent to be undesirable.

Defining market share can indeed be a complicated procedure. What is the "product?" The more loosely that product is defined, the smaller is a given company's market share. What is the geographic area to be included in defining the market—shall imports be included?[12] There are other ambiguities, such as in the Alcoa case, where the court included "recovered" ingot aluminum in computing Alcoa's share.

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[8] Most antitrust action is taken under the Clayton Act (38 Stat. 730, chap. 323; 15 U.S.C.A. 12) which is more preventive in nature than the Sherman Act (26 Stat. 209, chap. 647; 15 U.S.C.A. 1).

[9] 148 Fed. 2d 416 (1945).

[10] CCH, *Trade Cases* (1950–51), Par. 62,908.

[11] 82 S. Ct. 1502 (1962).

The consequences for the marketing executive of the share-of-market criterion of illegality is shown in a recent series of decisions by one of the largest meat-packing companies. The company had 30 per cent of the market for one of its products, with a trend toward an increasing share. Fear of prosecution caused the company to increase the price of the product, cut the advertising budget, and to begin producing the product for other companies to sell under their brand names. Another example is that Safeway Stores is alleged to have the policy of achieving only 25 per cent of any local retail grocery market, since 50 per cent is considered "politically unwise." Some companies wishing to expand have been motivated by the fear of antitrust prosecution to expand into other products rather than to increase the sales of their existing products. Probably much more important, however, is that some marketing practices that would ordinarily be interpreted as acceptable are suspected when carried out by a company with a large market share. "Refusal to sell," for example, might then be interpreted as a device to monopolize the market. In general, it may be said that the larger the share, the more susceptible the company is to criticism from the antitrust agencies.

PRODUCT DECISIONS

Legal limitations are likely to impinge in essentially three areas of product decision: (1) the quality of the product, (2) the design of the product, and (3) additions to the product line.

Quality

Two features of the law may influence decisions on product quality: (1) minimum standards of quality and (2) information about the quality. The Federal Food, Drug and Cosmetic Act (1938),[13] an extension of an earlier act, illustrates the first feature by prohibiting the adulteration and the sale of food, drugs, and cosmetics harmful to public health. Also, state and local laws apply to the quality of specific products, one of the most common being milk.

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[12] "Geographic market selected for determining whether merger is within Clayton Act proscription must correspond to commercial realities of the industry and be economically significant, and while geographic market in some instances may encompass entire nation, under other circumstances, it may be single metropolitan area." 82 S. Ct. 1502 (1962), p. 1506.

[13] 52 Stat. 1046, chap. 3.

The Wool Products Labeling Act of 1939[14] is an example of the second feature. It requires that articles of clothing or wearing apparel, blankets, and household textiles, made in whole or in part of wool, be labeled so as to disclose the percentage of wool in the fabric as well as the type of wool used. Another example is the Fur Products Labelling Act (1951).[15] The Federal Trade Commission proceeded vigorously against many different forms of misbranding[16] after this area of the law was strengthened by a Supreme Court decision in 1934.[17] Related to misbranding is the information about product quality conveyed by advertising, which will be discussed in connection with advertising decisions.

Design

In designing a product similar to one sold by its competitors, a company is limited by the trademark, patent, and copyright laws. The term "similar" is used here as it is viewed by the consumer, and it is more broadly defined than "style." Although trademarks are only an identifying mark on a product, such as a brand name, they are important. They provide protection for a brand name by limiting competitors' freedom to use it. A long series of court cases have been brought by the Coca-Cola Company trying to protect its trademarks from duplication by competitors.[18] There is always the possibility that if a company does not take legal action against users of its brand name, the name will become identified with the generic product, in which case the company will not be supported by the courts in later attempts to prevent others from using its brand name; "frigidaire" could come to be applied to all refrigerators.

Since copyright laws relate to literary and artistic works, the burden of protecting the rights of products which concern marketing executives falls mainly upon the patent laws.[19] The action of patent laws is illustrated in a legal decision which forbids copying the design or outward appearance of an established "prestige" product even if there is no attempt to represent the copy as the original.[20] The case arose when a company produced a much cheaper electrically powered clock similar to Longines-Wittnauer's Atmos Clock, which was powered by changes in atmospheric temperatures and retailed at $175.

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[14] 54 Stat. 1128, chap. 871.

[15] 65 Stat. 175, Chap. 298; and 15 USC 69–69j (1951).

[16] Dudley F. Pegrum, *The Regulation of Industry* (Homewood, Ill.: Richard D. Irwin, Inc., 1949), pp. 349–51.

[17] *Federal Trade Commission* v. *Algoma Lumber Company* (1934), 291 U.S. 67.

[18] For a discussion of the legal aspects of selecting and protecting trademarks, see Morton J. Simon, *The Law for Advertising and Marketing* (New York: W. W. Norton & Co., Inc., 1956), chap. xii.

[19] For a discussion of the patent laws, see Pegrum, *op. cit.*, chap. xiii.

The law is by no means effective in an absolute sense. It does not prevent, for example, "style piracy" in the women's apparel industry, where design is an important marketing tool. Although creators often patent their designs, it is said that patents have serious limitations because the season is over by the time the patent is issued. As a protective measure, a number of years ago the Fashion Originators Guild of America, "a group of leading New York creaters," developed a scheme of inducing retailers not to buy unauthorized copies of original styles. If a store broke its pledge, it was "red carded," which meant that manufacturers were directed not to supply this retailer. The plan was effective in preventing "style piracy," but the Supreme Court invalidated it because of its collusive nature.[21]

Style piracy was prevented, however, in a case in the furniture industry through a suit brought by Brunswick-Balke-Collender Company against the Kuehne Manufacturing Company.[22] The former designed some school furniture, and upon acquiring orders in excess of its own productive capacities, this company presented the blueprint of the design to Kuehne as a potential subcontractor. Kuehne refused, but three months later it issued a catalogue that included the design.

The significance of the law in new product decisions is illustrated in the procedure followed by the Illinois Tool Works of Chicago. An executive reports that both the company's patent attorney and outside patent counsel are represented at the monthly meetings of a committee that passes upon new product projects and reviews progress in research and development.

Product Line

The growing importance of product-line decisions and the expanding volume of law limiting these decisions have developed simultaneously. This expanding volume of law arises because of the possible effect of product-line decisions on competition. A new product may be added to the line either through market development or through the purchase of a company with an established product. Antimerger legislation (The Celler Antimerger Act) enacted in 1950 limits the latter course.[23] Prior to 1950 a company was free to expand through the purchase of another company's assets except if it violated the Sherman Act. Under the Sherman Act, the acquisition of another company's assets might have been accepted as evidence of *intent* to monopolize. Clearly expansion by the purchase of stock could be questioned.[24] Also, under the earlier legislation, the company could be charged with the attempt to monopolize only if it had already expanded through asset purchase or otherwise. Under the new Antimerger Act, however, action can be taken either before or after the acquisition, and the process of finding a violation is much simpler than proving "monopoly" under the old legislation. It is said that the purpose of the Celler Antimerger Act is to prevent monopoly rather than to deal with it after it has arisen.

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[20] *Mastercrafters Clock and Radio Company* v. *Vacheron and Constantin-Le Coultre Watches,* 221 Fed. 2d 464 (2 Cir., 1955); and 76 S.Ct. 67, 149, (1955).

[21] 61 S. Ct. 703 (1941); and *New York Times,* October 9, 1955, p. 1F.

[22] *Business Week,* July 21, 1956, pp. 58 ff.

There is yet not enough experience with the Celler Antimerger Act to indicate clearly its general impact or even to set forth sharply defined criteria. From 1951 to 1959 only one in seven acquisitions by the largest 199 companies has been challenged.[25] The wording of the statute suggests that whether a merger is illegal will depend upon the effect of the merger on the share of market. In the Brown Shoe Company case[26] the court stated, "The market share which companies may control by merging is one of the most important factors to be considered when determining the probable effects of the combination or effective competition in the relevant market."

In evaluating the effect of the Celler Antimerger Act upon product-line decisions, one of the major questions is how "industry" will be defined in computing share of market. For example, if the industry is defined rigorously so that it includes only identical products, then the Act would not affect product-line decisions at all—the merger would merely be adding to the capacity to produce the same product and thus not influence the product-line decision. Past experience suggests, however, that industry may be defined more loosely so that the Act can be used to prevent "an addition to product line." If enforcement should take the extreme point of view, that is, to be concerned with "conglomerate bigness"[27] rather than "share of market" or the extent of vertical integration, the Act could be quite significant. Again referring to the recent Brown Shoe case, "shoes" seemed to be considered the relevant market, although data were discussed which, for example, distinguished between children's and women's shoes.

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[23] 64 Stat. 1125.

[24] Sec. 7, Clayton Act.

[25] Frank J. Kottke, "Mergers of Large Manufacturing Companies, 1951 to 1959," *The Review of Economics and Statistics,* XLI (1959), 430–33.

[26] 82 S. Ct. 1502 (1962), p. 1534.

Under certain circumstances, "tying" contracts and "exclusive-dealer" arrangements are prohibited. This prohibition can serve to limit the product line. A "tying" contract is illustrated by a contract whereby the buyer must agree to take some of one product from a seller in order to obtain another product or service from this seller. An example is provided by the Kodak color-film case discussed previously. The consequence of the Kodak film-processing arrangement was to force the buyer to take a service that he might not otherwise buy from Kodak. Tying contracts enable the seller to dispose of products that he might not otherwise be able to sell.

Related to tying contracts is the practice of reciprocity which occurs in industrial markets when a company tends to buy only from the companies to whom it sells. Reciprocity may be condemned as a device to achieve monopoly power or as an unfair method of competition under the Federal Trade Commission Act.[28]

Another limitation on product-line decisions is the Robinson-Patman Act; it probably prevents cumulative discounts which may remove one of the advantages of a wide product line; therefore, the Act tends to limit the width of the line.[29] Cumulative discounts are based on the total purchases of all the sellers' products for a given period, often a year. For example, a large buyer might receive a discount according to the size of his total annual purchases even though his purchases included every item in the seller's product line.

PRICE DECISIONS

The law impinges on three major areas of price decisions: horizontal price agreements, price discrimination, and resale-price maintenance.

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[27] "Conglomerate bigness" has been suggested as a concept to describe business power that arises from sources other than horizontal integration, vertical integration, and efficiency. For a discussion of the concept, see National Bureau of Economic Research, *Business Concentration and Price Policy* (Princeton, N.J.: Princeton University Press, 1955), pp. 331–59.

[28] *U.S.* v. *General Motors Corporation, Northern District, Illinois,* January 14, 1963; CCH, *Trade Regulation Reporter* (1963), Par. 45063; and *Consolidated Foods Corporation,* F.T.C. Docket 7000, 1963.

[29] 49 Stat. 1526, chap. 592.

Horizontal Price Agreements

When price agreement exists among competitors at the same level in the structure of distribution, this is referred to as horizontal price agreement. In contrast to horizontal agreements are the vertical agreements which exist among the different links of the production-distribution process from raw material to the consumer. Resale-price maintenance is an example of a vertical price agreement. Expressed[30] agreements of the horizontal type on either the *level of price* or the *methods of setting price* that will result in a similar price among competitors are uniformly illegal under federal and some state laws, with two exceptions. The offense is "price fixing."

The first exception to illegal expressed horizontal price agreements occurs when the price agreements are carried out under the supervision of a governmental agency, as illustrated in the large local milk markets where the federal government supervises pricing at the producer level.[31] The second exception to price fixing occurs when producers of agricultural products make horizontal price agreements as provided under the Capper-Volstead Act.[32] The Florida Citrus Mutual, a fruit-marketing co-operative, was charged by the Federal Trade Commission with illegally attempting to fix the resale prices of citrus fruit shippers and fruit processors. If the association had confined its membership to growers only, the Capper-Volstead would have protected it from prosecution. It accepted as members, however, handlers, shippers, and processors.

Agreement as to price alone is not always effective in supporting an industry price at a higher level than it would be without the agreement. For example, if A and B have an agreement not to cut price, A is often unsure whether B is abiding by the agreement. Also, B may be taking sales from A by advertising or by some other nonprice competitive tool so that A feels he must cut his price in order to maintain his market share; therefore, a horizontal price agreement is frequently supported by agreement on other dimensions of the competitive front. One of the most effective is "market-sharing" arrangements where competitors will parcel out the various markets, usually on a geographic basis, and then agree not to sell in areas assigned to competitors. Market sharing is without question illegal. In 1952, Liquid Carbonic Corporation and four other manufacturers of carbon dioxide agreed in a consent decree to discontinue "allocation of territories."[33]

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[30] "Expressed" is used as contrasted with "tacit" agreements discussed in Chapter 6.

[31] To suggest the nature of this variety of law, see *State Milk and Dairy Legislation, op. cit.*, pp. 36–59.

[32] 42 Stat. 388, chap. 57.

There are other dimensions of competition in which uniformity of behavior among competitors has been questioned when used in connection with price agreements: credit terms, advertising allowances, allowances for return of containers, guarantees against price declines, and trade-in allowances for used products.

Note carefully that this conclusion of illegality applies to expressed agreements that can be proved by direct or circumstantial evidence. The objection to expressed agreements is that they result in similar prices among competitors, so that price is eliminated as a competitive device in obtaining sales. Antitrust enforcement may encounter difficulty on this point, however, because the consequences of expressed agreements can conceivably occur even without the existence of such agreements. A company usually cannot permit its competitors to continue charging a lower price or it will lose customers to them. It must comply immediately with whatever competitors do in their pricing. When a *few* companies are selling in the market, either one or both of two socially undesirable effects may occur in the industry: (1) prices can be excessively high, or (2) they may be inflexible rather than changing to conform to new conditions of supply and demand. The possibility of this kind of competitive behavior occurring through an effective price leader was suggested in Chapter 6. Thus even in the absence of an expressed agreement, unfavorable social consequences can occur, although industry studies suggest that typically these effects do not occur.

The doctrine of "consciously parallel action" has been proposed to meet this dilemma of the consequences ascribed to expressed agreements occuring even though the agreements do not exist. The doctrine states that the mere fact that companies behave the same way is not sufficient evidence of illegality. Parallel behavior is only a necessary condition. Another necessary condition is that the market results must be noncompetitive, which is interpreted to mean that the industry or company performance is unfavorable. Possible criteria for evaluating industry performance were discussed at the end of Chapter 6. The application of the doctrine of consciously parallel action was illustrated in the Cement Institute case of 1948 where "price in-flexibility over a long period in a changing economic sense was accepted as evidence of noncompetitive market adjustment."[34] So far the doctrine has had only limited application.

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[33] CCH, *Trade Cases* (1952–53), Par. 67, 248.

A recent development relating to horizontal price agreements gave a new twist to the law. A company may be charged with "conspiring" with its subsidiaries if they compete with each other. In late 1952, the F.T.C. lodged a complaint against Seagram's, Ltd. and its 21 subsidiaries for conspiring to fix prices and hinder competition. A similar complaint was lodged against Schenley Industries, Inc., and its eight subsidiaries. The basis for this new limit upon marketing decisions was a unanimous Supreme Court decision in 1951 which ruled that common ownership is no defense against conspiracy charges.[35] How far this new development may go is yet to be determined.

Price Discrimination

The practice of charging different prices to different buyers of products of like kind and quality is called price discrimination.[36] Discrimination may also occur in the form of merchandising aids, advertising allowances, and "free deals" (extra quantities of the product). Much of the law dealing with price discrimination touches upon the marketing channel as well as promotion decisions. The discussion of the law relating to nonprice discrimination will be found mainly in the sections devoted to those decisions.

The legal problems involved in price discrimination have caused marketing managers greater concern than have other areas of the law. Also, there is general agreement among marketing people, practicing attorneys, and economists that the law should be changed, but there is not complete agreement as to the kinds of changes that should be made. It is often alleged that the ambiguity of the law and the complexity of the price problem cause the law to be widely violated.

A brief statement of the more common bases for establishing price differentials to customers will add clarity to this extremely complicated subject. Quantity discounts, whereby the price is related to the quantity of the product a customer buys, are one of the major kinds of price differentials. Functional discounts, which will be discussed in connection with the law and marketing channels, relate price to the trade status of a buyer, such as whether he is a broker, wholesaler, or retailer. Geographic discounts result in different prices according to the location of the buyer—the basing-point system is one of the most common geographic discrimination methods. The basing-point method of pricing becomes significant only in the case of products for which transportation cost is a large part of the price. Steel and cement are examples. It is a method of pricing that permits only *delivered* pricing (the seller pays the transportation) and makes the price to a buyer the *lowest combination* of basing-point price (the price at some previously selected geographic point) and outbound rail-freight charges. The basing-point location and rail-freight charges are used in computing the price, irrespective of the actual location of the seller and irrespective of the method of transportation used.[37]

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[34] For the evolution of the doctrine, see Michael Conant, "Consciously Parallel Action in Restraint of Trade," *Minnesota Law Review,* XXXVIII (1953–54), 797–825.

[35] CCH, *Trade Regulation Reporter* (1952), Vol. III, Par. 11,203 and 11,660; and *New York Times,* October 2, 1952, p. 43.

[36] This definition is generally accepted, although the courts have never clearly defined the meaning of price discrimination under the Robinson-Patman Act. It is clear that the definitions of the courts and economists often differ. For perhaps the most comprehensive treatise of the law with respect to price discrimination, see Frederick M. Rowe, *Price Discrimination under the Robinson-Patman Act* (Boston: Little, Brown & Co., 1962). This publication is kept current.

Cash discounts, which relate prices to time of payment, also give rise to price differentials.[38] Another class of discounts are those that relate price to the time of purchase, illustrated by seasonal discounts. Finally, the "personal situation" of the buyer, such as his bargaining power and negotiating acumen, may lead to price differentials.

Under the Robinson-Patman Act (1936),[39] an amendment that closed certain loopholes and in addition considerably extended the scope of the Clayton Act (1914), price discrimination among goods of like grade and quality is illegal when the product is sold in interstate commerce, *except* under any one of the three conditions: (1) the differences in price can be justified by differences in cost in serving the accounts; (2) competition is not injured; and (3) the differences are necessary in order to meet competition. Some 24 states have passed similar laws.

Differences in Cost. Cost justification has proved difficult in practice. As the major enforcement agency of the Robinson-Patman Act, the Federal Trade Commission has taken the position that among buyers, price differentials which are greater than the differences in average full costs are illegally discriminatory. Estimates of average full cost are highly ambiguous because they depend upon the inherently arbitrary method of allocating overhead costs. For example, a company may allocate no overhead to a less profitable department because if it does the department will show a loss and the loss will be detrimental to morale. Although justifiable for personnel reasons, the practice cannot be justified on any other basis. Many of the complications involved in assembling a defensible cost estimate were discussed in Chapter 7. There are a number of other complications in measuring cost: many costs cannot be traced to the product; unit costs vary and are indeterminate among the various conditions of sale, such as quantity, location, and channel; and factory costs change and sales are made from inventory.

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[37] For a more detailed explanation, see Chapter 12.

[38] This type of discount, when of normal magnitude and extended to everyone, is clearly legal.

[39] For perspective on this important statute, see Corwin D. Edwards, "Twenty Years of the Robinson-Patman Act," *Journal of Business,* XXIX (1956), 149–59.

Quantity discounts have been cost-justified in the past, but in 1951 the Federal Trade Commission ruled for the rubber tire manufacturers that the quantity for which a discount could be granted must not exceed one carload.[40] Irrespective of actual savings, the "quantity limit rule" overrides any possibility of justifying a greater discount on a cost basis.[41] It was reversed by the court on technical grounds, and apparently no new attempts have been made to apply it.

Competition Not Injured. In order for price discrimination to be illegal, only a reasonable probability that competition will be injured is necessary; this ruling greatly increases the area of illegality through injury. Injury to competition is assumed when a company sells at different prices to two buyers who are competing on the selling side. Thus, the Robinson-Patman Act applies to "injury to competition" among competing customers and among competing sellers.

Meeting Competition. The argument that price discrimination is necessary to meet competitors' prices has become known as the "good faith" defense. In the Standard Oil of Indiana Case of 1951,[42] the Supreme Court ruled that meeting competition justified price discrimination. A seller, however, cannot use this argument to justify cutting a price to a reselling buyer on the grounds that this *buyer* needs the lower cost to meet his competition.[43] The F.T.C. has further ruled that the "good faith" defense applies only to "individual competitive situations," and not to "general systems of competition."

In the case of the C. E. Niehoff & Company, a Chicago automobile parts producer, the F.T.C. trial examiner ruled that for the "good faith" defense to apply, the price discrimination must be: (1) temporary, (2) localized, (3) individualized as to a given competitor, (4) not part of a pricing system, and (5) defensive rather than offensive. This position of the trial examiner was supported by the Commission.[44] In a later case, however, a court has ruled that offensive price discrimination is not prohibited.[45]

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[40] See Warren W. Leigh, "The Quantity-Limit Rule and the Rubber Tire Industry," *Journal of Marketing,* XVII (1952–53), 136–55.

[41] Section 2 of the Robinson-Patman Act gives the Federal Trade Commission authority to set quantity limits.

[42] 71 S. Ct. 240 (1951).

[43] Bureau of National Affairs, *Anti-trust and Trade Regulation Report,* No. 79 (January 15, 1963), pp. X10–X17.

Finally, "meeting competition" cannot justify meeting a price that the executive knows to be illegal or that is of such nature as is inherently illegal.[46]

Price Experimentation. A question of real importance to a marketing manager is whether it is legal to experiment with prices in order to secure information for price setting since price experimentation clearly results in price differentials. Price experimentation appears to be acceptable in the consumer market where the buyers cannot in any meaningful sense be viewed as being in competition with each other. It is conceivable, however, that if the experiment at the consumer level required changing prices to the distributors and/or retailers, the experimenting company would be charged with price discrimination. It is reported that in carrying out market tests a food company provides its distributors and dealers with a written statement that it is manipulating price in order to obtain market information.

Resale-Price Maintenance

Resale-price maintenance, or "fair trade" as it is often called, is the practice whereby the manufacturer establishes the minimum or actual price at which the product is to be resold even though the reseller is a separate legal entity from the manufacturer. Under federal law, the Miller-Tydings Act (1937), manufacturers of advertised, branded products were permitted to designate the prices at which resellers could sell in states that had fair-trade laws permitting such vertical price fixing. Where these laws existed, manufacturers were able to enlist the aid of the courts to enforce "fair-trade" prices. Furthermore, under the "nonsigner clause," the manufacturer by having a contract with but one retailer in the state could force all retailers in the state to conform to the price even though they had not individually agreed with the manufacturer.

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[44] CCH, *Trade Regulation Reporter* (1954–55), Par. 25,134 and 25,467; and *Business Week*, June 4, 1955, p. 52.

[45] *Sunshine Biscuits, Inc.* v. *F.T.C.*, 306 Fed. 2d 48 (7 Cir., 1962).

[46] *Standard Oil Company* v. *Brown*, 238 Fed. 2d 54 (5 Cir., 1956).

With the passage of the Miller-Tydings Act, state legislatures proceeded rapidly to take advantage of the permissive legislation. Fairly soon, all but three states (Missouri, Texas, and Vermont) and the District of Columbia had such laws on their books. Since 1950, however, the law has been in a state of flux at both the federal and state levels. In 1951 the Supreme Court declared that the Miller-Tydings Act permitted only voluntary vertical price fixing instead of the "nonsigner" interpretation. The following year Congress passed the McGuire Act,[47] which put the law back where it was prior to the Supreme Court decision by explicitly including the nonsigner clause. In 1953, the Supreme Court refused to review a case involving "fair trade"; this refusal apparently establishes the McGuire Act.

As of January 1, 1963, in passing on the constitutionality of resale-price maintenance in general, state courts had ruled it constitutional in 24 states, and four states had ruled it unconstitutional. In passing specifically on the nonsigner provision, 24 states had ruled that the nonsigner provision is constitutional, and 18 states ruled it unconstitutional.[48]

A recent development, which may portend something of the future of resale-price maintenance, is the emphasis upon whether the manufacturer is enforcing "fair trade" generally. A hint of this was observed as far back as 1951. In granting an injunction to General Electric to prevent Macy's from selling below the retail price established by General Electric, the court warned General Electric that the manufacturer must police its "fair-trade" contracts generally if any one contract was to be valid. At the end of 1954, the maker of Broil-Quik electric broilers brought an injunction against Abraham & Straus, a Brooklyn department store. A. & S. pleaded that it was surrounded by "discount houses" and was forced to cut prices in order to meet this competition. The injunction action was dropped with no explanation.[49] In July, 1955, a federal judge in Milwaukee refused an injunction to General Electric against the Boston Store on the ground that General Electric did not diligently enforce its fair-trade program, not only in Milwaukee but generally.[50] Finally, still another issue was raised when General Electric requested an injunction in its price-cutting suit against Hess Brothers, Inc. A federal judge stated that if he granted the injunction, the injunction would not be continued unless General Electric abandoned its practice of granting employee discounts on its products.[51]

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[47] 66 Stat. 631, chap. 745.

[48] CCH, *Trade Regulation Reporter* (1963), Par. 6041. Most of the decisions were by the respective supreme courts, but in few instances the decision was by a lower court.

[49] *Advertising Age,* January 3, 1955, p. 16.

[50] *Business Week,* July 30, 1955, p. 54.

Sales below Cost

In a number of states there are laws called "unfair sales acts" which make it illegal to sell below cost. In 1951–52, 31 states had laws of this type and 19 of them established specific price floors for wholesalers and retailers. An example of the method of establishing these minimum prices is by setting a minimum markup of 6 per cent on merchandise cost plus freight and cartage for retailers and a corresponding 2 per cent for wholesalers. The enforcement of such laws is, in general, left to private parties; consequently, enforcement has been erratic and in general quite lax. Generally, unsuccessful efforts have been made to transfer the enforcement responsibility to public agencies.

MARKETING CHANNEL DECISIONS

The law applies to marketing channel decisions as follows: (1) it can influence the manufacturer's relations with the middlemen making up the channel in a given structure, and (2) it can change the nature of the structure of distribution. The first influence, if operative for a long enough period, will lead to the second. The first influence is illustrated by the "quantity-limit rule," many of the smaller tire dealers were apprehensive of this rule even though it was designed for their benefit. They feared that if the tire manufacturers could not grant quantity discounts to the larger dealers, the manufacturers would refuse to sell to the small dealers. The trademark law is also important because under its provisions the manufacturer can have a distinctive brand, which gives the manufacturer additional bargaining power vis-à-vis the distributive companies in the channel.

The second influence is shown by the fact that if the fears of the small tire dealers were realized, the nature of this section of the tire distribution structure would probably undergo a radical change through the elimination of a portion, if not all, of the small tire dealers. The more farsighted and financially able dealers would enter other businesses, and the remainder would probably face ultimate financial failure. This possibility of change in the distribution structure as a result of the law may influence channel decisions. A company manufacturing auto accessories and thinking of expanding its market would probably hesitate in choosing the small dealer whose future is uncertain.

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[51] *New York Times,* September 3, 1956, p. 21.

Because of their significance for marketing channel decisions, the McGuire, Clayton, and Robinson-Patman Acts will be discussed according to their respective implications. If the states' "unfair sales acts" were enforced, they would have an effect both upon the relations between the companies (manufacturer and middlemen) in the channel and upon the structure of distribution.

McGuire Act

The effect of the McGuire Act (1952) upon the manufacturer's relations with the middleman is clear and straightforward—the manufacturer of a branded item can set the resale price. If the manufacturer only partially enforces the resale price, serious friction between manufacturer and retailers may result. The effect of the Act upon the structure of distribution is less clear. Bowman has come to the conclusion that among the products he studied, prices were some 4 per cent higher in fair-trade states.[52] The significantly higher prices occurred even though 36 per cent of all sales in the fair-trade states during the period 1951 to 1953 were below the minimum prices set by the manufacturer. Presumably then, retail margins have been protected by the law. The consequence is that the retail structure tends to be frozen in its current form instead of adjusting freely to the play of economic forces.

Clayton Act

The Clayton Act is significant in prohibiting "tying" arrangements that lessen competition. It applies to buyers in general, but the rule is particularly relevant to marketing channels. "Tying" arrangements insert a condition, namely, that the buyer must buy Product B in order to get Product A. Eastman Kodak, in a consent decree growing out of an antitrust suit, agreed to discontinue a "tying" arrangement on Kodachrome and Kodacolor brands of its color film. Prior to this agreement, the retail price of either brand included both the cost of the raw film and the cost of developing the exposed film. The government was concerned because Kodak had 90 per cent of the color-film market and because this exclusive processing arrangement was alleged to have added to its market power. Now the government requires that Kodak be willing to offer the film and the film processing separately.[53]

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[52] Ward S. Bowman, Jr., "The Prerequisites and Effects of Resale Price Maintenance," *The University of Chicago Law Review,* XXII (1955), 855–58.

"Exclusive dealing" is similarly characterized by a conditional nature. A manufacturer will sell to a dealer only if the dealer will agree to handle the manufacturer's products alone and not the products of his competitors. The condition for illegality is that competition may be injured. The volume of business defined in either relative (share of market) or absolute terms is one of the major criteria determining whether competition is damaged. The maker of Revlon cosmetics was found guilty because it had a dominant share and because of the number and importance of jobbers involved in Revlon's exclusive contracts. The effect, according to the Federal Trade Commission, was to close the available channels to competitors.[54] The classic case in exclusive dealing is the Standard Stations case where it was established that a substantial volume of business must be involved in order for the practice to be illegal.[55]

Robinson-Patman Act

The influence of the Robinson-Patman Act on manufacturers' relations with members of the marketing channel will be spelled out in detail, and from this, its influence upon the structure of distribution will be apparent. In general, its effect has been more and more to prevent change in the structure through limiting innovations in distribution.[56] The specific provisions of the Robinson-Patman Act relate to (1) price discrimination, (2) brokerage allowances, (3) promotional payments, (4) discrimination in services, and (5) buyer responsibility.

One important question about the general problem of discrimination is whether a company can refuse to sell to a buyer, because if it cannot refuse, prohibition of discrimination can be a more complex problem for the marketing manager. The evidence suggests that a company may refuse to sell to anyone as long as it charges the same price to all actual buyers.[57] The Robinson-Patman Act was intended to prevent large buyers from getting price advantages not open to their smaller competitors. "Refusal to sell" may enable the seller to circumvent this intent because by refusing to sell to the smaller buyers, the seller is free to set a more favorable price to the larger buyers.

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[53] CCH, *Trade Cases* (1954), Par. 67,920; and *Business Week,* July 30, 1955, pp. 50–52.

[54] CCH, *Trade Regulation Reporter* (1954), Par. 25,184 and 25,249; and *Business Week,* October 16, 1954, p. 156.

[55] 69 S. Ct. 1051 (1949).

[56] William F. Brown, "The Effect of Federal Legislation upon Marketing Channels," in Richard M. Clewett, (ed.) *Marketing Channels* (Homewood, Ill.: Richard D. Irwin, Inc., 1954), pp. 498–502.

Another significant point is that price discrimination is illegal only if it injures competition. Discrimination in brokerage allowances, promotional payments, or services are illegal irrespective of their effect upon competition.

Price Discrimination. To the earlier discussion of price discrimination it need be added only that the Robinson-Patman Act is relatively more complicated in its application to channel decisions. The complication arises mainly because distributive buyers at the same level in the structure of distribution are clearly in competition with each other; therefore, the use of the "noninjury-to-competition" defense of discrimination is severely limited. As long as the buyers are not in competition with each other, such as a wholesaler and a retailer, price discrimination is permissible. The legality of functional discounts has recently been reaffirmed in the Hruby Distributing Company case.[58] One exception to this has occurred, however, in the case of the Kraft-Phenix Cheese Corporation, which was setting the wholesaler's selling price. In this case, the F.T.C. held that since the manufacturer controlled the wholesaler's price to the retailer, all retailers, both those buying direct from Kraft and those buying from the wholesaler, should be considered Kraft's customers; therefore, illegal price discrimination existed.[59]

In addition, many wholesalers also sell at retail; when this occurs, wholesalers must not receive a lower price from the manufacturer for the goods to be sold at retail than the goods to be sold at wholesale. The manufacturer will not clear himself by making only a half-hearted effort to insure that the wholesaler does not underpay. It is apparent that this rule poses serious problems for the manufacturer.

Brokerage Allowances. A manufacturer—usually one that does not have his own sales force—can often avoid the use of a broker's services by selling directly to a large buyer. Can the manufacturer pass this saving on by lowering the price to the large buyer who has, in effect, absorbed the brokerage function? The savings that result from bypassing the broker cannot be used by the manufacturer to justify a price differential in favor of a large buyer; however, the manufacturer is free to substitute salesmen for the broker, and the personal selling cost may be used to cost-justify a price differential. In a recent case a broker—Henry Broch and Company—attempted to give a single buyer a lower price by absorbing through a lower commission a portion of the price cut, with his principal absorbing the remainder of the price cut by lowering his price. The broker's practice was declared an unlawful brokerage allowance.[60]

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[57] Jack I. Levy, "Functional Pricing and Trade Discounts under the Robinson-Patman Act," *Journal of Business,* XXVII (1954), 182 n.

[58] Bureau of National Affairs, *Antitrust and Trade Regulation Report* No. 78 (January 8, 1963), pp. X-6–X-11.

[59] Levy, *op cit.,* p. 183.

Promotional Payments and Services. Payments made by the manufacturer to the retailer for joint efforts in co-operative promotional arrangements open possibilities for hiding what is, in fact, price discrimination. The legal rule is that advertising allowances and similar promotional payments may be made only if such payments are made available on *proportionally equal terms* to all other customers competing in the distribution of the product. The same rule applies with regard to services furnished by the seller to the buyer.

This rule poses serious complications. In the cosmetics industry, demonstrators sent out by the manufacturer to the retail stores are an effective means of promotion, but they are probably economical only in the large stores where traffic is heavy. The Federal Trade Commission has suggested that a solution in this industry is to offer the smaller retailers some substitute service. The use of a substitute service was suggested in an F.T.C. action against Lever Brothers, Procter & Gamble, and Colgate-Palmolive-Peet. The practice was to offer an allowance of roughly 20 cents per case of product for newspaper advertising and 9 cents for handbills. Since the small dealers cannot afford newspaper advertising, the F.T.C. lawyers claimed that this resulted in discrimination. The Commission, however, stated that various media were available and the "proportionality" condition was satisfied.[61]

Payment according to some notion of "value received" by the manufacturer has also been suggested by an F.T.C. attorney, but it has not been applied by the Commission. The manufacturer might, for example, pay the retailer according to the retailer's ability to maintain a quota based upon some measure of the retailer's sales potential.

Buyer Responsibility. In order to make the antidiscrimination rules effective, the law provides that any buyer who "knowingly" receives the benefit of price discrimination has violated the Act.[62] The enforcement of this provision, however, will be difficult as suggested in the first case that reached the courts, the Automatic Canteen Company case (1953). The Supreme Court reversed the F.T.C. and emphasized the unreasonableness inherent in a provision that in effect requires a buyer to know a seller's costs.[63] However, trade experience or the formation of a buying group in order to obtain volume discounts may be sufficient to prove that the buyer knows that the discounts he receives are not cost justified.[64]

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[60] 80 S. Ct. 150 (1959).

[61] CCH, *Trade Regulation Reporter* (1953), Par. 11,444 and 11,588; and *Business Week,* January 9, 1954, p. 58.

Automobile Dealers Franchise Act

Although its effect is as yet unknown, a recent law may be important in influencing the relations between the automobile manufacturers and their dealers. The Automobile Dealers Franchise Act provides that an automobile dealer may sue in a federal district court to recover damages arising because the manufacturer failed to comply with the terms of the dealer's franchise or in terminating or not renewing the franchise.[65]

PROMOTION DECISIONS[66]

Most of the legal limitations upon promotion deal with advertising rather than with personal selling. The extensive body of law concerning the relations between a salesman and his company is omitted because it is usually covered in a business law course.

Advertising and Social Welfare

Advertising is subjected to many attacks, and legislative proposals to limit the amount of advertising receive political support. Some examples will illustrate attitude toward advertising. After a careful study of the cigarette manufacturing industry, an economist proposed that the government, by means of a progressive tax, limit advertising in this industry in order to make it easier for new firms to enter.[67] The staff of the Congressional Joint Committee on the Economic Report in 1951 proposed a heavy sales tax on advertising as an anti-inflationary measure. During 1955, a number of states considered and some adopted laws that make advertising subject to sales-tax laws even though services are in general exempt from these taxes.[68] The congressional hearings on the honesty of quiz shows and more recently the hearings on television ratings both suggest a growing concern over advertising.

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[62] Sec. 2(f), Robinson-Patman Act.

[63] For a discussion of the case which explains the unrealistic nature of requiring a buyer to know a seller's cost, see Mark S. Massel and R. James Gormley, "Business Methods and Antitrust Policy: The Automatic Canteen Case," *Antitrust Bulletin,* I (1955), especially pp. 473–81.

[64] *Mid-South Distributors et al.* v. *F.T.C.,* 287 Fed. 2d 512 (5 Cir. 1961).

[65] *U.S. Code Congressional and Administrative News,* No. 16 (September 20, 1956), pp. 6589–90.

[66] For an extensive discussion of the law as applied to advertising, see Simon, *op. cit.*

Although most of the actual law against advertising relates to "truthfulness," an understanding of the whole problem of public policy and advertising is important to the marketing executive. Advertising is attacked on a number of grounds: untruthfulness, blatancy, waste, power to influence human behavior, and contribution to monopoly. Raucous television announcements in the privacy of the home illustrate the criticism of blatancy. The conclusion that advertising is "waste" results from an application of static economic anlysis which assumes an informed market. When the dynamic nature of the economy is incorporated into the analysis, however, this conclusion becomes more tenuous. The rapid development of new products and changes in the buyers that make up a market necessitate some method of disseminating information. Conceivably there may be better ways of accomplishing this task than through advertising, however.

The fear of concentrated power is one of the basic values of American society; this value appears to be transgressed when companies consider it a good investment to spend millions of advertising dollars in influencing people to buy their products.

To understand this objection to advertising it is helpful to distinguish two methods in which advertising can change purchasing behavior: (1) If the consumer has definite criteria for evaluating the product, advertising can provide information or misinformation about the extent to which the advertiser's product satisfies the criteria. For example, the Department of Agriculture has established product standards through its "grade-labeling" efforts. The Department defines product standards for a number of items so that when a consumer observes that a product on display bears a certain quality label, he knows the characteristics of the product. Untruthful advertising occurs when the advertiser in describing a product uses a grade that does not accurately describe the quality in fact, or he advocates standards different from those covered in the Department's definitions. (2) Alternatively, advertising can change behavior by modifying the criteria. The fear of concentrated power as applied to advertising appears to refer to this second method of influencing purchasing behavior.

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[67] William H. Nicholls, *Price Policies in the Cigarette Industry* (Nashville, Tenn.: Vanderbilt University Press, 1951), pp. 412–15.

[68] *Advertising Age,* August 8, 1955, pp. 14–15.

The distinction between wrong information for given criteria and changing the criteria is important because it seems to permeate implicitly much of the economist's discussion of advertising in which criteria, as used here, are identified with the economist's "buyer tastes." When the problem is cast in terms of the buyer behavior model of Chapters 3 and 4, however, the distinction becomes much less clear. In those chapters "criterion" was defined as the "pattern of product cues" used by the buyer in choosing a brand; cues, predispositions, and goals all taken together approximate "buyer tastes." It is essential to recognize the difference in these two points of view; each one is useful for its purpose, but they should not be confused. A much more detailed analysis of the buyer decision process is useful for marketing decisions than the economist has traditionally found necessary.

Finally, advertising is said to contribute to monopoly because the big companies, through advertising, close the market to smaller companies that cannot afford large advertising budgets.

Truthfulness

The Federal Trade Commission, first under its original legislation and later under the Wheeler-Lea Amendment (1938),[69] is charged with preventing unfair methods of competition. One of these methods is false advertising. From its experience, the Federal Trade Commission has formulated standards of acceptability. The category of "permissible puffery" (advertising that is not quite truthful but not untruthful enough to be illegal) has been established. It is the capacity to deceive rather than actual deception that matters.[70] In a case concerning Chesterfield's advertising, the Commission ruled that Chesterfield's use of "cooler" is puffing, but that "milder," "soothing," and "no unpleasant aftertaste" are illegal. This example illustrates the complex nature of the problem.

"Truthfulness" has also been called into question in personal selling. The F.T.C. brought action against U.S. Industries (formerly

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[69] 52 Stat. 111, chap. 49.

[70] *F.T.C.* v. *Hires Turner Glass Co.* (CA-3, 1936).

Pressed Steel Car) because the salesmen of its distributors were disparaging competitors' products. U.S. Industries was said to be responsible because it provided the brochures used by the salesmen and the salesmen gave the impression that they were representing U.S. Industries rather than their distributor-employers.[71]

Salesmen and Price Discrimination

It is illegal for a salesman being compensated on a commission basis to sacrifice a part of his commission in order to grant a customer a lower price. One court has ruled that a cost-justification defense is not precluded when the cost savings are those by reason of the seller's commission salesman reducing his commission.[72] It is possible to avoid this problem by discontinuing the sales force and using independent distributors, but independent distributors cannot be granted territorial exclusivity.

Bait Advertising

A number of states have enacted laws that prohibit advertising a false offer that is merely intended to attract the buyer's interest. Other states are contemplating similar action. The nature of the practice is illusrated by the first conviction under the New York law. A sewing machine distributor advertised machines at $29.75, but when the machine was brought to the home for demonstration, it would not work or would break down during the demonstration. The salesmen, after telling the prospective customer that the machine was inferior, would then attempt to sell a machine priced at $175 to $300.

At the federal level, the Federal Trade Commission has acted against "bait" advertising.[73]

"PROFESSIONALIZATION"

Among people engaged in marketing, there is often discussion of the need for the tendency toward "professionalization" of marketing. One idea is that the necessary regulation of marketing practices should be self-imposed rather than established through public policy. The current state of self-regulation is difficult to assess, and its future is even more uncertain. It must be remembered that things which harrass the marketing manager may be desirable from a social-welfare viewpoint because they bring cheaper and better products. An apt statement is, "The greatest of all monopoly profits is a quiet life." There is a large area, best illustrated perhaps by blatancy and untruthfulness in advertising, where self-regulation could perhaps be more effective.

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[71] CCH, *Trade Regulation Reporter* (1954), Par. 25,148 and 25,363.

[72] *Thomasville Chair Company* v. *F.T.C.*, 306 Fed. 2d 541 (5 Cir., 1962).

[73] Simon, *op. cit.*, pp. 404–5.

Better Business Bureaus, supported by financial contributions from companies, represent self-regulation. In part at least their effectiveness lies in the heterogeneity of their membership, which often results in some members being directly damaged by the practices of other members. The injured members are more inclined than other members to report the practice and to support the bureau in opposing the practice. The effectiveness of the bureaus and related agencies such as chambers of commerce can be said to fall short of the required level of self-regulation.

One source of considerable public concern where self-regulation may play a part is in the influence of advertising and personal selling upon the buyer's standards of choice. It is argued that style will come to play a greater role in American consumption and that this will provide the source of standards. By referring to style the consumer can make his purchase judgments, it is alleged, independent of advertising rather than to have these judgments influenced, if not determined, by the advertiser.[74] This view is consistent with the Reisman thesis set forth in Chapter 5. It is further argued that in this new era of style, the marketing manager will become more professionalized because he will concern himself with (1) interpreting to the consumer what the style is, and (2) interpreting to his company the requirements of the style in terms of product design. Evidence can be cited to suggest that style is becoming relatively more important in influencing purchasing habits. How important it will become and whether it will be developed free from the influence of advertising specific products remains to be seen.[75]

There are unresolved ethical questions involved in marketing. Most of these questions in one way or another have to do with "influence" (Chapters 3 and 4 illustrate this repeatedly). We know little about the problem of influence. Only within the last thirty years has research been devoted to this topic. The emotional attacks upon advertising often seem to be motivated by frustration springing from our lack of understanding the problem. The growing body of knowledge concerning influence gives hope that some day it may be possible to formulate a rational social policy concerning it.[76]

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[74] Nelson N. Foote, "The Autonomy of the Consumer," in Lincoln H. Clark (ed.) *Consumer Behavior* (New York: New York University Press, 1953), pp. 15–24.

[75] The reader should be aware that "standards of choice" like the economist's "tastes" is a global term that is useful for the level of discussion here, but not appropriate for the detailed level of analysis essential to understanding the buyer for purposes of making marketing decisions.

SUMMARY

Some areas of decision are severely limited by the law; pricing represents the more extreme situation as illustrated in the recent electrical conspiracy. In general, however, the law remains a secondary consideration as compared with demand, competition, cost, and the structure of distribution.

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[76] See Raymond A. Bauer and Alice H. Bauer, "America, Mass Society and Mass Media," *Journal of Social Issues,* XVI (1960), 3–66.

PART III

Marketing Decisions

Chapter 10

PRODUCT DECISIONS

Product decisions are concerned with product change, which is defined as any conscious change in the company's offerings as viewed by the buyer.[1] They are a device by which a company can often gain a temporarily protected, and therefore profitable, market. Ultimately competitors will usually erode away the protection and invade the market, but the erosion takes time and the company that is already established has the advantage.

There are a great variety of possible product changes. At one extreme are such things as a minor modification of the label or color of the package. Coca-Cola's decision to use 12- and 26-ounce bottles to supplement the standard 6-ounce bottle that it has used since 1915 represents an intermediate degree of product change. At the other extreme is the experience of the Pressed Steel Car Company which produced nothing but railroad cars for more than half a century. Not long after 1950 it turned entirely to the manufacture of trailers, automobile and aircraft parts, prefabricated houses, kitchenware, and a number of other nonrailroad products. On November 1, 1954, it went so far as to change its name to U.S. Industries, Inc. The addition of a new item or a new department in a retail store is a product decision, and the decision can be handled with the same set of principles as product changes in a manufacturing company.

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[1] "Merchandising" means essentially the same thing as product decisions, but because of its greater ambiguity and comprehensiveness the term is avoided here. For example, Tosdal uses it to include service and guaranty policy in addition to the above meaning. See Harry R. Tosdal, *Problems in Sales Management* (4th ed.; New York: McGraw-Hill Book Co., Inc., 1939), pp. 49–50. For a definition similar to the way it is used here, see Charles F. Phillips and Delbert J. Duncan, *Marketing: Principles and Methods* (4th ed.; Homewood, Ill.: Richard D. Irwin, Inc., 1960), p. 520.

Just as there are many types of product changes, there is an equally wide range of planning horizons involved; thus, each decision often requires particular demand and cost concepts. Each of these concepts may pose different problems of measurement. A product change may have merely short-term implications on the demand side and involve negligible cost, or a product decision may transform a company's whole demand and cost structure.

Although the widely discussed practice of "diversification" has to do with product decisions, it has a broader meaning which includes any growth in the company's sales except increase of sales to existing customers. Also, it includes expansion into new markets, which does not necessitate a product decision in the sense used here.

PRODUCT CHANGE AS A MANAGEMENT PROBLEM

Executives are almost universally agreed that the problems met in product-development programs, including those of marketing the product, are among the most difficult and complex problems faced by management.[2] Coca-Cola's act of expanding into the larger-sized bottles may appear to have been a simple one, but anyone familiar with this type of decision would recognize its complexities and risks.

Product changes immediately create problems of organization. Who in the company will carry the burden—will it be an "additional duty" or will new people be brought in to do it?[3] General Electric's experience in introducing its new solenoid illustrates the organizational aspects of new-product decisions as well as many other marketing features.[4] One man, who reports to the marketing manager of the product division, is given the responsibility for co-ordinating the many facets of product development, some of which are shown in the time schedule in Figure 48. The comments in the extreme right- and left-hand columns of Figure 48 are some of the conclusions reached at the respective stage in the decision. The various steps listed in the schedule suggest something of the complex nature of a product decision.

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[2] Packaging will be treated here only as an aspect of the broader problem of product change. For a discussion of the specific problem of packaging, see J. Gordon Lippincott and Walter P. Margulies, "Packaging in Top-Level Planning," *Harvard Business Review,* XXXIV, No. 5 (1956), 46–54.

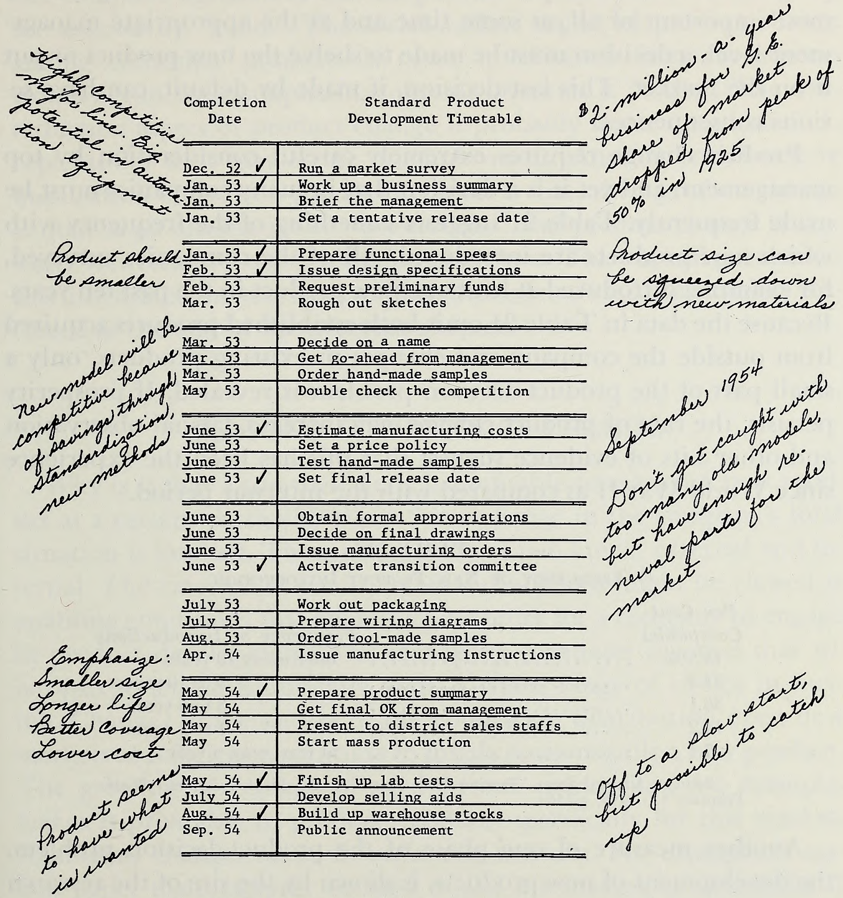
[3] Neil H. Borden, "Development and Marketing of New Consumer Products," *Boston Conference on Distribution* (Boston: Retail Trade Board, 1954), pp. 66–67.

[4] "Keeping a New Product on Track," *Business Week,* September 4, 1954, pp. 148–49.

Estimating the demand for a new product raises serious problems. Being an industrial product, the solenoid probably does not encounter as many difficult problems of demand measurement as does a consumer product. When the product change is a minor one, buyer views can be solicited. Department stores often solicit the views of its customers as to the probable dress styles for the coming season.

FIGURE 48

Case History of General Electric's New Industrial Solenoid



Completion Date	Standard Product Development Timetable
Dec. 52 ✓	Run a market survey
Jan. 53 ✓	Work up a business summary
Jan. 53	Brief the management
Jan. 53	Set a tentative release date
Jan. 53 ✓	Prepare functional specs
Feb. 53 ✓	Issue design specifications
Feb. 53	Request preliminary funds
Mar. 53	Rough out sketches
Mar. 53	Decide on a name
Mar. 53	Get go-ahead from management
Mar. 53	Order hand-made samples
May 53	Double check the competition
June 53 ✓	Estimate manufacturing costs
June 53	Set a price policy
June 53	Test hand-made samples
June 53 ✓	Set final release date
June 53	Obtain formal appropriations
June 53	Decide on final drawings
June 53	Issue manufacturing orders
June 53 ✓	Activate transition committee
July 53	Work out packaging
July 53	Prepare wiring diagrams
Aug. 53	Order tool-made samples
Apr. 54	Issue manufacturing instructions
May 54 ✓	Prepare product summary
May 54	Get final OK from management
May 54	Present to district sales staffs
May 54	Start mass production
May 54 ✓	Finish up lab tests
July 54	Develop selling aids
Aug. 54 ✓	Build up warehouse stocks
Sep. 54	Public announcement

Highly competitive major line. Big potential in automation equipment

Product should be smaller

New model will be competitive because of savings through standardization, new methods

Emphasize:
Smaller size
Longer life
Better Coverage
Lower cost

Product seems to have what is wanted

$2-million-a-year business for G.E. Share of market dropped from peak of 50% in 1925

Product size can be squeezed down with new materials

September 1954
Don't get caught with too many old models, but have enough renewal parts for the market

Off to a slow start, but possible to catch up

Source: *Business Week,* September 4, 1954, p. 148.

Cost estimates are essential. Almost inevitably, costs will decline as production experience increases—but at what rate will they decline?

One of the more important marketing decisions is the "marketing mix," which is the appropriate magnitude and balance in the use of the various competitive tools—product, price, channel, and promotion.

General Electric's organized approach illustrated in Figure 48 meets another of the difficulties of product change—that of establishing control over work in progress. Periodic appraisals of research progress are essential; priorities must be established; and probably most important of all, at some time and at the appropriate management level, a decision must be made to shelve the new product or put it on the market. This last decision, if made by default, can have serious consequences.

Product change requires extremely careful consideration by top management, and yet it is a decision that in many companies must be made frequently. Table 21 suggests something of the frequency with which new products are introduced. All of the companies surveyed, for example, introduced at least one new product in the past ten years. Because the data in Table 21 omit both established products acquired from outside the company and changes in existing products, only a small part of the product-decision problem is revealed. If prosperity persists, the rate of product change may increase. Casual observation and other bits of evidence suggest that this has been the experience since World War II as compared with the interwar period.

TABLE 21

FREQUENCY OF NEW PRODUCT INTRODUCTION

Per Cent Companies	*Frequency of Introductions*
18.5%	once every 10 years
23.9	" " 5 to 10 years
36.1	" " 3 to 5 years
14.2	" " 1 to 3 years
7.4	at least once a year

Source: Adapted from "Putting New Entries in the Field," *Business Week*, February 12, 1955, p. 50.

Another measure of one phase of the product-decision problem, the development of new products, is shown by the size of the research budgets for this purpose. Recently Westinghouse Electric Corporation was spending 6 per cent of its sales dollar, and American Cyanamid was spending 5.3 per cent. These expenditures are probably typical among the larger companies.

Aside from their effect on the profit position of the company, product decisions have important social-welfare implications. In Chapter 3 it was pointed out that the rate of product change is one criterion for evaluating the economic performance of a company or industry. The product change may be viewed as an "improvement" because it brings increased satisfaction to the buyer directly, or, as in the case of industrial products, because it permits the buyer to reduce his cost of production, which can result in lower prices for his product. Generalization on this point must be made with care, however, since there is not complete agreement that all product changes found in industry are necessarily "good." The social-welfare aspect of product change among consumer products is often questioned. Some consumers would argue, for example, that chrome on autos is "waste." The cost-reduction aspect of product change is probably never questioned except insofar as it may create unemployment. Another social-welfare implication of the new-product decision is that often product change is used as an alternative to "promotion," and product change is typically viewed as the more desirable of the two. This view of promotion was illustrated in the unfavorable attitude toward advertising discussed at the end of the previous chapter.

REASONS FOR PRODUCT CHANGE

Why is it that a company finds it profitable to market a new product at a certain particular time? Some change in the company's total situation is implied. These changes are of two kinds: external and internal. The external or environmental conditions might be viewed as enabling conditions that open the possibility for a company to engage in product development. The increasing consumer incomes that we have experienced historically allow a wider range of choice in buying. Changes in the nature of the population distribution open new markets of sufficient magnitude to justify economically a new product. The growing percentage of aged in our population, for example, makes it profitable to produce products specifically for this market. Analogous changes occur in industrial markets. For example, a carbon paper manufacturer decided to test the market to determine if the conventional black carbon paper was most satisfactory to typists. The company experimented with four colors and found that total sales increased. The four colors were merely conforming more closely to the differing needs in the market. Changes in buyer needs, usually springing from changes in social habits and customs, create a demand for new products. Adding a new complementary product to the product line of a company can lead to the creation of additional demand for this entire product line.

Finally, research leads to new products which can satisfy latent needs that never before have had the opportunity of being manifested. The growth of industrial research and its profound significance for marketing is one of the striking developments since World War II. In 1945 only about $1.8 billion was being spent on research and development through the combined efforts of industry, government, educational, and other institutions. This figure grew steadily and by 1959 reached about $12.0 billion. It is predicted that by 1969 it will increase to $22.2 billion.[5] This growth has led to the development of new-product departments, a significant and complex organizational change. The effect of research, however, has varied considerably among industries.

The internal changes that encourage a particular company to initiate new products revolve around excess capacity in the company.[6] It is possible to envision a company in a completely static economy achieving a position of perfect balance where no excess capacity in any form would exist. In the kind of a dynamic economy faced by American executives, however, the constant play of economic forces tends to destroy any balance that may be achieved.

Excess capacity may occur in any area of company operations. Conventionally it is thought of as existing only in production facilities, but this is far from true. Marketing facilities are often excessive. Undistributed profits may lead to excess financial capacity. Excess facilities can exist especially in management and research.

Some of the basic forces that play upon the company and create excess capacity are (1) changes in demand, (2) the instability of competitive positions in an oligopoly market, and (3) prosperity. Changing customer demands in the bicycle industry created a need for a product decision which managements either failed to recognize or ignored. It has been apparent for a number of years, even to the casual observer, that the demand for the lightweight bicycle was increasing. This increase probably came partly from a growing adult market and in part from a shift in the needs in the adolescent market due to a growing awareness of the greater ease in riding a lightweight model. To protect the bicycle industry, President Eisenhower decided to grant the industry a tariff increase. As an example of technologically induced changes in demand, we can cite the dieselization of the railroads which created excess capacity in a company producing water-treatment materials required by steam locomotives. As a consequence the company has turned to producing a combustion catalyst that increases the efficiency of oil furnaces.

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[5] Dexter M. Keezer, "The Outlook for Expenditure on Research and Development during the Next Decade," *American Economic Review,* suppl. L (1960), Table 2, p. 363.

[6] Joel Dean, *Managerial Economics* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1951), p. 115.

In addition to the secular change in demand illustrated in the bicycle and water-treatment industries, *cyclical* and *seasonal* shifts create the need for products that will serve as a counterbalance in the company's operations. A steel company added a wide-flange beam to its line of products partly because this type of beam is used in highway construction. The company reasoned that in the event of a depression, highway construction would probably increase as a result of public works programs. The guaranteed annual wage is sure to intensify efforts in the direction of adding new products to achieve stability in production.

Declines in company demand often occur because of the instability of an oligopoly market. When a few companies dominate the market, one company may obtain some advantage and increase its share of the market. The effect is, of course, to leave the losing companies with excess capacity.

Periods of prosperity influence both company policy and consumer buyer activity. The undistributed profits of a company during prosperity must be put to work. The question of internal versus external investment results. If these profits are to be used for internal investment, then the company must decide if they should be used for expanding the facilities of existing products or for developing new products. Profits lead to funds for research and its consequent new technology. From the standpoint of the consumer, prosperity may make him more willing to try a new product. Product change, therefore, is a relatively more effective competitive tool during prosperity than it is during a depression.

"ADD-AND-DROP" POLICY

When product-change decisions are made, an effective "add-and-drop" policy should be formulated and followed in order to minimize executive time devoted to the problem and to avoid mistakes. Although "add-and-drop" implies only the extreme type of product change—change in the product line—an analysis that is useful for this decision applies just as well in principle to more minor changes where the problem is typically less complex.

An effective policy is simple in principle: add high-profit items and drop low-profit items. Timing at both ends of the product cycle—the birth and death of the product—is extremely important; therefore, a policy should include a system of warning signals that suggest the need for change. If this need is known long enough in advance, appropriate changes can be formulated and "in the mill" before the unfavorable product condition is reflected in the profit and loss statement. Even after the product is out of the laboratory, many months will usually be required for market testing and market development, which further necessitates early recognition of the problem.

It is possible in some companies to take advantage of a "product cycle." One company reports having a six-year cycle: two years in the early laboratory stage, one year in the pilot-plant and pilot-marketing stage, and three years "ahead-of-the-industry" stage. A product next enters into general competition with those of other manufacturers who by then may have developed better or cheaper substitutes. A product is then watched very carefully to note changes in its competitive position and profit contribution. A demand-and-cost study may be initiated. Obviously all of the company's products did not conform precisely to this cycle, but they did conform close enough for the cycle to serve as an effective guide.

Unless a company does develop some type of warning system, the management is almost sure to "muff" an opportunity because the enormous demands on management's time prevent constant and careful watch of every product. A periodic review of the profit contribution of each product can be helpful. Only rough approximations are necessary. Products of doubtful status can then be more carefully analyzed as to their past, current, and estimated future profit contributions.

ADDING PRODUCTS

Products can be added in either of two ways: (1) through internal development or (2) through acquisition of a going product from outside the company.[7] The internal development method will be discussed in detail since it encounters complex problems; later the two methods will be compared.

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[7] New products can also be acquired by the purchase of product rights and stock acquisition. The first is not common, however, and the second is carried out primarily for nonmarketing reasons.

There are essentially four steps in the process of adding new products. First, there is the necessity for maintaining a flow of ideas for new products. The company's laboratory is one source. "Basement inventors" are an occasional source, but it is often difficult to appraise their contributions. There are professional organizations whose stock in trade is to find and market ideas for new products. Second, a rational method of appraisal is necessary for making a selection among the various candidates for new products. Third, the marketing plan, or "marketing mix," must be designed. The marketing plan for new products is more complex because during the market-development stages a new product usually requires quite a different combination of competitive tools than an established product. Fourth, certain administrative machinery is necessary for accomplishing the process of product additions. Perhaps the most important of the four steps is the method for appraising product candidates that come to the attention of the marketing executive. Profitability is, of course, the basic criterion for selecting among alternative product candidates. The alternatives are typically so numerous, however, particularly in the most preliminary stages, that the profit criterion is not feasible, but qualitative or "screening" criteria are essential.[8]

The qualitative criteria are related to the determinants used in the profit criterion—demand, competition, and cost. However, there are certain things which cannot be quantified. Cost and time limitations always exist in applying the profit criterion to all alternatives.

Qualitative Criteria for Evaluating New Products

More and more companies are tending to formulate criteria explicitly as a guide for new-product decisions. Formulation is often precipitated by an unfortunate experience with a new product, which is illustrated by the experience of the Solar Aircraft Company. In 1939, its sales were $500,000, but by 1945, because of the war demand for heat-resistant engine components for jet airplanes, sales skyrocketed to approximately $30 million. At the end of the war, with its wartime market largely eliminated, the company began to acquire new products by buying small companies. After some serious mistakes with such products as steel burial caskets, picture-film development machinery, dairy machinery, milk pails, and garden furniture, it now has formulated the guide to choose only "new products that are related in some way to high-temperature materials and their fabrication."[9] Although general in nature, this criterion is probably quite useful.

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[8] For a discussion of the procedure for appraising new products used by the Dewey and Almy Chemical Company, see T. T. Miller, "Projecting the Profitability of New Products," *The Controller,* XXIII (1955), 483–85.

The qualitative criteria which follow can be applied to most product decisions.

Demand Characteristics. A new product can affect existing products in two ways: (1) it can affect an individual product or (2) it can affect the product line as a whole.

As for the relation with individual products, a new product can be either a substitute for or a complement to existing products. These concepts were defined early in Chapter 3.[10] A pertinent question is "Why should a company add a new product that competes with the sale of its existing products?" One reason is the possibility that competitors will introduce it first. Another reason is that the marketing manager can seldom be sure that he is anticipating buyer reaction correctly; thus, it may also be wise to introduce a substitute product as insurance against the vagaries of buyer behavior, even though competitors are not likely to introduce it. Finally, the new product may be more profitable than the existing product.

A "complementary relation" means that the sale of one product serves to increase the sales of another. Existing products may benefit the sale of the new product—a unilateral relation with benefit flowing to the new product. Very probably a complementary unilateral relation exists between the sales of home washing machines and dryers; since dryers came later, the benefit was from an existing product to the new one. The demand relation can be unilateral with the benefit of the new product flowing to established products. Public-utility companies supplying electricity have added departments to retail household appliances. Appliance sales will result in increased domestic consumption of electricity. Finally, the benefit can flow both

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[9] "Diversifying Has Its Pitfalls," *Business Week,* March 20, 1954, pp. 50 ff.

[10] The concept of cross-elasticity of demand provides a precise way of describing these relations. The principle involved is that changes in the price of one product (Y) will change the demand curve for another product (X). Cross-elasticity of demand for X in terms of the price of Y equals

$$\frac{\text{Percentage change in quantity sold of } X}{\text{Percentage change in price of } Y}.$$

When cross-elasticity is positive, the two products are substitutes for each other. It will be negative under two conditions: (1) if the income effect—the effect upon the person's real income from a price change of the product—outweighs the substitution effect (this possibility exists only for instances where the products constitute a large proportion of the buyer's total purchases), and (2) if there is complementarity of products.

ways; for example, the Chevrolet Corvette, a sports car, was brought out in 1953 "to refute a growing notion that Chevrolet was getting conservative and stodgy."[11] At the same time, the Chevrolet reputation probably carried over to the new Corvette.

The new product can influence the product line. A product line may well be a different entity than the sum of the individual products. One of the major purposes for adding a given product is that it enhances this unitary nature of all the products combined. The line is important partly because of the company's relations with middlemen. Many products not related in their ultimate use are distributed together. Insofar as the product line meets the entire needs of the members of the distributive channel, the company can be more effective in building a dealer organization and aiding in the dealers' merchandising activities through training, co-operative advertising, and "point-of-purchase" materials. The Deepfreeze Appliance Division of Motor Products Corporation suddenly canceled a $500,000 advertising program and went out of business in March, 1956—due in part to its inability to build a distribution system for freezers and refrigerators alone.[12] For the same reason, International Harvester Company sold its refrigerator-producing facilities to Whirlpool-Seeger Corporation in 1955.[13]

The product line is also important from the standpoint of the role of the brand name. A brand often becomes established in the buyer's mind as connoting certain favorable qualities. When the brand is applied to a new product, the buyer may tend to impute these qualities to it. The psychological principle supporting this tendency is generalization—the buyer tends to *generalize* his purchasing behavior to the brands that are similar to the ones he has been buying—and the concept of *labeling* which relates specifically to brand: attaching the same cues (the same brand) to different products increases the amount of generalization. These principles were discussed in Chapter 4. For example, United Biscuit has been operating with four brands—Supreme, Keebler, Strietmann, and Hekman—but it recently adopted a single brand,[14] which will enable it to take greater advantage of the generalization principle.

Distinctive Know-How. Company know-how is a qualitative criterion which has to do with management knowledge, research and engineering personnel, or other areas of company skill. The dominance of this criterion is suggested in Solar Aircraft's new thinking discussed previously. The American Machine and Foundry Company recognized its importance by the admonition, "Don't plunge into a new venture without first finding a man who has lived successfully in the market you are about to serve." The idea is that if a company is adding a product that sells in a market other than those the company has served, it should hire someone from outside who has had extensive experience in that market.

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[11] *Business Week,* January 14, 1956, p. 27.

[12] *Advertising Age,* December 26, 1955, pp. 1 ff.

[13] *Business Week,* October 8, 1955, p. 43.

[14] *Business Week,* December 29, 1962, p. 40.

Common Production Facilities. Unused production facilities are one of the most common reasons for adding a new product. The criterion should be applied with care, however, to insure that the excess capacity is not merely temporary, since current excess capacity may be absorbed by the expanding sales of existing products.

Common Marketing Facilities. Common marketing facilities are the counterpart of the production-facilities criterion. Existing distribution channels typically represent a heavy investment, and common distribution channels may provide a considerable competitive advantage. When Campbell Soup Company, for example, introduced its new frozen soups, its greatest difficulty was to obtain freezer space in retail stores.[15] This problem would probably be much greater for a company that had not been selling other products to these stores.

In addition to common marketing channels there is the criterion of a sales force and an advertising staff. A new product incurs little additional distribution cost if it can be handled by existing salesmen, particularly if it does not require additional calls on their part. As with the production-facilities criterion, temporary "excess capacity" should not be used to provide justification for a product addition.

Common Raw Materials. The criterion of common basic raw materials is often used. It is illustrated in Swift & Company's investigation into frozen prepackaged meats which will be referred to subsequently. The application of this criterion of common raw materials can result in greater control of raw material prices and usually results in exploiting common production facilities and distinctive know-how.

A tool-manufacturing company formulated for its own use the following set of standards which incorporates some of the qualitative criteria discussed in this section:[16]

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[15] *Advertising Age*, April 11, 1955, p. 39.

[16] Robert F. Dick, "Keeping the Product Line Up to Date" (Marketing Series, No. 89), (Chicago: American Management Association, 1953), p. 26.

The market must be at least $1 million.
The product must be patentable.
The gross profit must be 40 per cent or better.
The net profit (after taxes) must be $15 per square foot of plant space used.
The product must fit into present distribution channels and be sold by the present direct-selling organization.
The product must utilize the type of production equipment already available—although not necessarily already on hand.
The net profit should be 100 per cent of equipment investment.
The net profit after taxes should approximate 10 per cent.

Profit Criterion for Evaluating New Products

The application of the profit criterion in selecting from among alternative candidates immediately raises two questions: (1) what normative decision model should be used and (2) how should it be applied?

Decision Model. Short-run and long-run general optimizing models were discussed in Chapter 7. Almost without exception, the long-run model is appropriate for the new-product marketing decision because an investment of funds is required which will not be expected to yield a return until future years. Only in the new-product decision can we make the general statement that the long-run model is appropriate. In most other areas of marketing decisions, advertising, for example, more information must be given about the specific decision before it is possible to say which model is appropriate.

The long-run model, it will be recalled, employs the rate-of-return criterion in choosing among alternatives. It specifies much the same data as the short-run model—demand (buyer and competitors' behavior) and cost—but over a longer period of time. The particular time period—the planning horizon for new-product decision—depends upon the expected life of the new product being considered. It has become more and more meaningful to speak of the "life of a product" because the increased rate of technological change implied in the growing industrial research expenditures discussed earlier tends to create a definite life span of a particular product.

Buyer Behavior. In terms of the buyer behavior model, with a significantly new product the buyers would be in Phase 1 of the learning process. The crucial question, however, is how rapidly will the buyer advance through the various stages of learning? Professor Borden has suggested the "degree of newness" as a determinant of the acceptance speed of a product. A way of giving operational meaning to this concept of "degree of newness" is to use the principle of generalization: the buyer generalizes his purchasing behavior to the new alternative that is most similar. In the automobile industry, evidence is given of this generalization tendency: one of the automobile companies reports that when an individual "trades up" in purchasing automobiles, the probability is fairly high that he will stay in the same line. If he owns a Chevrolet, for example, he will probably buy a Buick. He generalizes "up the product line" in the same company. Let us discuss the extreme case of a "quite new" product. Less significant product changes, for example, even a minor package change, can be viewed in terms of the same learning process, but with generalization playing a greater role. Also, the company with the widely known brand name probably has an advantage here because, as was noted from the earlier discussion of "labeling" in Chapter 4, a buyer may generalize via the label. The executive, however, must bear in mind that his personal views as to what will appear "new" to the buyer are often quite erroneous.

The importance of the new product is probably a key factor in predicting rates of product acceptance. The reader will recall from Chapter 4 that this was one of the exogenous variables in the model. A product with a higher degree of importance implies that the buyer will devote more effort to collecting information in one way or another as a basis for his buying decision. A second exogenous variable is the buyer's capacity to evaluate the product after he has made his decision (Ease of Post-Decision Evaluation). If the product can be easily evaluated, the buyer relies more upon experience, and the decision process is probably more sharply defined. Finally, a third exogenous variable appears to be economic conditions (Financial Status). It is hypothesized, with some empirical support, that buyers are more receptive to new products in periods of prosperity. Consumers are probably less willing to try new products during periods of depression because at this time their income is lower than what they have considered adequate for their living standard and thus they are less inclined to accept the risks involved in buying an untried product. The speculation that declining consumer incomes discourage acceptance of innovation has been alluded to earlier in this chapter.[17]

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[17] This hypothesis has been held by economists for some time. For example, "The contraction of the incomes of purchasing units is likely to harden expenditure patterns against a new product." *Business Decision-Making in a Dynamic Economy,* a syllabus used in the introductory economics course in the College at Harvard University (Undated), p. 15.

Some suggestive empirical evidence is contained in Table 22. Although the evidence is by no means conclusive, it is the only attempt that has come to the attention of the author to test this important hypothesis empirically. This table merely shows that when questioned on household goods (including appliances), people with favorable income expectations tend to be innovation-minded. It could be, for example, that people with favorable income expectations are more inclined to buy; consequently, they have been shopping in anticipation of the purchase and have familiarized themselves with product features.

TABLE 22

RELATION BETWEEN ATTITUDES TOWARD INNOVATIONS IN HOUSEHOLD GOODS AND PEOPLE'S PAST AND EXPECTED FINANCIAL SITUATION*

Past and Expected Financial Situation	Innovation-minded†	Intermediate†	Not Innovation-minded†
Income has been going up—further improvement expected	27 per cent	18 per cent	10 per cent
Income has been going up—no change expected	8	10	6
Income has been steady—improvement expected	23	14	13
Income has been steady—no change expected	19	29	32
Income has been unsteady or going down, or family expects to be worse off	15	23	25
Not ascertained	8	6	14
Total	100 per cent	100 per cent	100 per cent
Number of cases	179	421	163

* Based on urban re-interview sample of 855 cases; report on past and expected financial situation as of June, 1954.

† The three attitude categories are based on the following criteria:

1. Interest in the latest features on the traditional appliances. Being interested in new features and naming one or more specific appliances is a positive response. Not being interested in new features is a negative response.
2. Owning, planning to buy, or having considered purchasing a new appliance. Owning or planning to buy one of the new appliances is a positive response. Having only considered buying is a pro-con response. Neither owning nor having considered it is a negative response.
3. People's evaluation of new appliances as "useful" or "luxury." The answer "useful" is a positive response. Answers such a "partly useful, partly luxury" are pro-con responses. The answer "luxury" is a negative response.

The questions were: (1) "Has your family income been quite steady during the past few years, or has it been going up, or going down, or changed from time to time?" (2) "A few years from now, would you think you and your family will have a better position and income than you have now, or will you be in about the same situation or even in a less satisfactory situation? Why do you think so?"

Source: Eva Mueller, "The Desire for Innovation in Household Goods," in Survey Research Center, University of Michigan, *Consumer Behavior* (New York: New York University Press, 1957), Vol. III, Table 14.

What is the nature of the search process? The "diffusion of innovation" studies which have been carried out in the framework of sociology are helpful in explaining the search process.[18] These studies suggest that first the buyer wants technical information—information about how the product will contribute to his goals. The manufacturer's salesmen and the various types of advertising seem to serve this function. Both advertising and selling serve to communicate information, but selling has the advantage of permitting feedback: the buyer can ask questions and receive replies. Friends of the buyer are also a source of information. Thus, general promotion by the company perhaps helps by reaching friends of the buyer as well as the buyer himself.

The buyer approaches a second and even more important period in the decision process when he seeks the advice of others (friends) to "legitimate" the decision. The reason seems to be that, as is inherent in all decisions, the buyer cannot be sure what the outcome of the purchase will be—he is uncertain. Also, in the case where group values are important, by talking with his friends the buyer can more clearly identify the values satisfied by the product. Perhaps this is a more compelling reason why the company should employ an amount of mass advertising that on the surface might seem uneconomic.

Up to this point it has been assumed implicitly that all buyers are alike. If they were, the marketing executive's problems would in a sense be much simpler. To the extent that differences exist among his buyers, the executive must either render his marketing plan more ambiguous and diffuse in order to serve these varied buyers or he must develop different plans for each of the different kinds of buyers or segments of buyers in the market.

One type of interbuyer difference is found in the diffusion of innovation studies: some adopt the new product early and some late. The early adopters tend to be more in contact with the "outside world" than are late adopters. Doctors who accepted a new drug early were more inclined to read medical journals and attend medical meetings. Early adopters of hybrid seed corn were found to be frequent visitors of the larger cities, the county fairs, etc. In both cases early adopters were more likely to use rationality rather than tradition as the basis for decision.

These statements about innovation apply to industrial buyers also. In terms of the traditional definition of a consumer—one who buys for his own consumption—the farmer buying hybrid seed corn is more like an industrial buyer than a consumer. In addition, a careful study of how companies accepted major innovations—diesel locomotives, continuous mining machines, high-speed bottle fillers, etc.—reveals that the "number of companies who have already adopted it" is an important variable in explaining the rate of acceptance.

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[18] For the best available summary, see Elihu Katz, "The Social Itinerary of Technical Change: Two Studies on the Diffusion of Innovation," *Human Organization,* XX (1961), 70–82.

A second interbuyer difference is with respect to social class. For example, it is clear that different social classes use different symbols. By definition they have different values. These suggest that different types of appeals may be desirable. In addition, it may be that different social classes accept change at different rates, and this is important to know in predicting sales. Some evidence, as indicated in Chapter 4, shows that product information does not tend to be transmitted among social classes. This is contrary to established beliefs. These beliefs may have arisen because the upper classes accept new product ideas more rapidly, and thereby it was incorrectly inferred that the lower classes learned about the product *from* the upper classes.

Cultural differences, too, could make a difference in purchasing behavior.

If the buyer finds it difficult to evaluate the product even after the purchase (Ease of Post-Decision Evaluation), a new range of problems arises. The buyer will be subject to post-decision dissonance and find it necessary to discover ways of justifying to himself that it was the best buy. One element in Ease of Post-Decision Evaluation is the nature of the buyer's goals being served by purchase of the product—the buyer's motivation. Specifically, if the goals being served are few in number and distinctive, the evaluation would be easier and create less post-decision dissonance. Advertising and sales effort can serve this function. It is conceivable that if the buyer does not find such support he will be less inclined to purchase it next time. Post-decision dissonance leads to perceptual bias; the advertising and selling effort can provide information which in his selective perception the buyer can use to rationalize his decision.

The potential role of generalization was discussed earlier. For a frequently purchased product, and perhaps one that is not so important, it may be better to employ novelty as a marketing strategy rather than to utilize the principle of generalization by making the new product similar to existing products. Psychological research indicates that people have a need for novelty which runs contrary to their desire for the familiar, their tendency to generalize. The relevance of this for buyer behavior remains to be developed and can now be considered only an hypothesis.

In Extensive Problem Solving, information cues are dominant, but as the buyer acquires sufficient experience with the product to enter Limited Problem Solving, product cues become relatively more important. A significant question now would seem to be whether or not competitors have developed similar products by this time. If not, by definition no close substitutes would exist, and the buyer would have little difficulty in making comparisons and he would be subject to relatively less post-dissonance. Little promotional effort would seem to be required. However, if the product serves a goal of low intensity, promotion could presumably serve the important triggering function also. The problem of what features of a product function as cues has not been systematically studied.

It remains for further research to tell us the precise way in which the behavior statements made above with respect to new products apply to a particular company's buyers. The propositions contained in these statements, however, combined with an experienced executive's intuition and imaginative market research guided by these propositions, can go far in reducing the risk of new product development.

All of the methods for collecting information discussed in Chapter 4 are relevant to the measuring of demand for new products. In the past decade the use of market testing in evaluating new products has grown rapidly. The market testing method has the disadvantage of being expensive, however, and runs the risk of "tipping your hand" to your competitors.

The use of the market test is illustrated by a milling company that introduced a new sweetened cereal some time ago. Part A of Figure 49 gives the data for a nine-month test of the first version of the new product. The figure to the left of Part A shows the total purchases of the new product in the area during each of the nine months. The figure to the right, which separates buyers according to "new" and "repeat," is much more revealing. Comparison of the new and repeat users suggests that the product was not satisfactory. Part B presents the data for a later 16-week experiment with an "improved" version of the sweetened cereal. Although the initial increase in sales of the improved version was not as precipitous, growth was steady and one of the reasons was the greater number of "repeat" buyers.

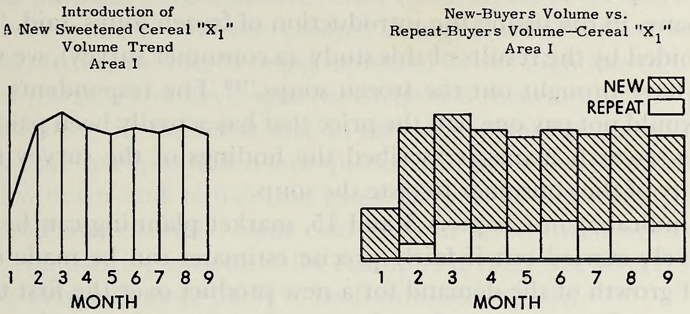
The market test method was used by Swift & Company in testing what proved to be a radical innovation in the packing industry. The new product was fresh, frozen prepackaged meats. On May 15, 1955,

FIGURE 49

MARKET TEST METHOD OF ESTIMATING DEMAND FOR NEW PRODUCT

PART A

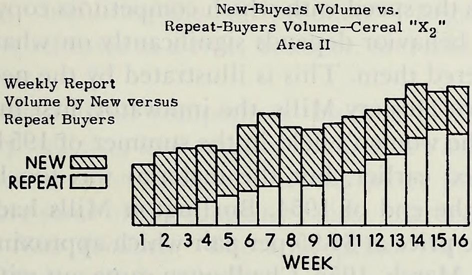
TESTING NEW PRODUCTS


Introduction of A New Sweetened Cereal "X_1" Volume Trend Area I

New-Buyers Volume vs. Repeat-Buyers Volume—Cereal "X_1" Area I

PART B

TESTING NEW PRODUCTS


New-Buyers Volume vs. Repeat-Buyers Volume—Cereal "X_2" Area II

Weekly Report Volume by New versus Repeat Buyers

Source: Larkin Osborn, "Market Analysis, a Tool for Developing Business and Controlling Distribution Costs," *Proceedings of the Third Conference on Controllership,* The University of Chicago, 1954, pp. 21–23.

the product (27 different items) was placed on sale in Detroit, and the experiment continued for a year.

Such research is expensive. The high mortality rate among new products is well known, however, and considering the heavy investment in production changes, inventory, and promotion required to introduce a product to the national market, research may provide cheap insurance. Inadequate market research and underestimates of selling cost—both of these errors are the responsibility of the marketing manager—have been emphasized as the dominant reasons for the striking number of failures among new products.

Under some conditions, experimentation will yield results that are much more precise than either the market test or market survey. The nature of these conditions can be inferred from the limitations on experimentation discussed in Chapter 4. A survey which is used independently of a market test or experiment is probably of limited usefulness—the buyer is asked to evaluate a product with which he has had no experience. The market-research manager of Campbell Soup Company, in discussing the introduction of frozen soups, said, "If we had abided by the results of this study (a consumer survey), we would never have brought out the frozen soups."[19] The respondents stated they would not pay one half the price that has actually been paid. The market-research manager ascribed the findings of the survey to the inability of the consumer to taste the soup.

As indicated in Chapters 5 and 15, market planning can be more effectively carried out if fairly precise estimates can be made of the rate of growth of the demand for a new product over the first two or three years. Some attempts have been made to formulate mathematical "growth curves" to predict this rate of growth.

Competitive Behavior. One of the considerations on the demand side of the decision is the speed with which competitors copy the new product since buyer behavior depends significantly on what alternative products are offered them. This is illustrated by the new stretch stocking.[20] Chadbourn Hosiery Mills, the innovator, first introduced stretch stockings in the women's field in the summer of 1954. (Men's stretch socks appeared earlier, but the material was too heavy for feminine wear.) By the end of 1954, Burlington Mills had entered the field but held the price at $1.95 per pair which approximated the Chadbourn price. In March, 1955, Chadbourn came out with a more durable version of its original product at two pairs for $4.00. At the same time, however, Julius Kayser & Company entered the stretch-stocking market with two brands, its own at $1.65 and a subsidiary's brand at $1.49. Soon, all of the approximately 700 stocking producers were making plans to produce stretch stockings, and only about 15 to 20 per cent of women's stockings were branded which is important because unbranded stockings are more subject to severe price competition. A sharp downward effect upon the price of stretch stockings would have been expected in the future because of the competition afforded by the many producers entering the stretch-stocking market and because it had been found necessary to produce only three sizes of the stockings, which reduced production costs.

In Chapter 6 competitive behavior was examined as one of the conditions to which a marketing executive must pay attention. However, the discussion in Chapter 6 was confined to price as a competitive tool because it is important, it has been more thoroughly studied than other marketing tools, and to confine it to price simplified this very complex problem of competitive relations. In terms of the marketing executive's interest, however, product change is a much more important tool. Its significance is being increased by the high rate of investment in research and development. Chapter 6 relates closely to product innovation in the sense that in estimating whether to initiate a new product, one question is how quickly will price competition force the price down and reduce the gross margin, as illustrated in the stretch-stocking example. Some evidence can be acquired by examining the competitive structure: for example, if there are several firms, the gross margin is more likely to be diminished rapidly.

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[19] *Advertising Age*, April 11, 1955, p. 39.

[20] *Advertising Age*, February 21, 1955, pp. 3 ff.

Patents may be an aid in slowing down competitive entry. In the stretch-stocking example, "the patent office . . . has been flooded with registrations. Manufacturers are trying to get patents on every stage in the process—including the end product."[21] Legal protection is only temporarily effective as a rule, however, and seldom lasts for the life of the patent.

Information about competitors' product plans can be helpful, of course, in predicting how rapidly competitors are likely to duplicate the product or come forth with a still better product. These plans, however, are some of the company's most guarded secrets.

Cost of New Product. The appropriate cost concepts were presented in Chapter 7. In a large company, the traceable-common cost distinction is important because costs must be traced to the division initiating the new product. Once this has been accomplished, the problem is to arrive at those costs that relate specifically to the new product.

The application of the principles and methods of cost analysis set down in Chapter 7 should suffice with some modifications for the company with experience in producing a product similar to their new product or for the company able to call upon another company's experience. If the company's own experience is of no value in estimating the production cost of the new product, and if it is unable to take advantage of the experience of another company, the only feasible method is the engineering approach. In the engineering method, cost is built up in terms of physical units, such as man-hours and pounds of material, then the dollar cost is derived by applying prospective prices to the estimates of the number of physical units of factors required.

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[21] *Ibid.*, p. 46.

One problem in predicting the cost of a new product is that the cost is usually greatly reduced as the company acquires experience in producing it. An analogy is often drawn with the learning curve of Chapters 3 and 4. Obviously "company learning curves" are the sum of many individual learning curves: those of both workers and management. Some research has been devoted toward an attempt to identify the shape of these curves in particular companies.[22] If the nature of these curves can be identified and if they have a degree of generality, they will be useful in predicting costs for new product decisions.

One of the major costs, typically, is promotion, which can be estimated by the advertising and sales managers once the appropriate combination of competitive tools—the marketing mix—has been decided upon. The estimates will necessarily be rough because, except for the early stages, promotion will depend largely upon the speed with which market acceptance is attained.

It has been argued that, because of the uncertainty of the cost and sales of a new product, the cost estimates for products of expected long life should include an allocation of overhead. "The businessman's rule of thumb of loading on the new product its full share of common overhead cost is often the most appropriate method after all."[23] Logically, cost should include an estimate to provide for the risk imposed by uncertainty, but the accountant's estimate of "its full share of common overhead" will coincide only by accident with a rational estimate for risk.[24]

Marketing Plan

The demand and cost features of introducing new products have been discussed, but the marketing plan for a new product has elements that were not implied in that discussion. It was implicitly assumed, for example, that direct channels of distribution were being used. Also, the timing element was not made specific.

In the introduction stage, the promotional outlay must necessarily be heavy relative to expenditures on an established product. The psychology and sociology of the buyer justifies this, as indicated in the discussion of buyer behavior earlier in this chapter. In addition, distributors and dealers must be encouraged to stock the product. The promise of heavy consumer advertising is one way of providing this encouragement. "High impact advertising" was used by Campbell Soup Company in marketing its frozen soups in order to obtain shelf space in retail stores.[25]

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[22] See, for example, Werner Z. Hirsch, "Firm Progress Ratios," *Econometrica,* XXIV (1956), 136–43.

[23] Dean, *op. cit.,* pp. 122–23.

[24] References concerning formal tools to deal with uncertainty were cited in Chapter 2.

The requirement for promotion of the product by advertising gives the marketing manager two alternatives of rate of market acceptance when the alternatives are stated as the extremes:

1. He can invest heavily in promotion and gamble that its ultimate return will justify the expenditure, bearing in mind that there may be a significant lag between the promotional outlay and the product's contribution to profit. During this lag, top management may have its fingers crossed, and the marketing manager may feel like a condemned man who has been granted a temporary reprieve. If his judgment proves correct, handsome profits can accrue to the company. His experience, however, could parallel that of the television industry. In early 1954, several of the large television producers introduced color sets, and by late spring the results were abysmal. Retrospect suggests that no amount of promotion would have succeeded—prices were too high, the picture was too small, and the programming (about three hours per week) was too limited.

2. The marketing manager may develop market acceptance slowly, using only limited promotion. Word-of-mouth advertising by satisfied users will help, as suggested by the drug study discussed earlier. Also, competitors may join in and with their promotion contribute to the process of changing buyer habits. The marketing executive may cut his price to reach a wider market, and even though he will be sharing this market with competitors, he may be ahead enough to afford himself some advantage. Also, if the marketing executive takes this alternative, he will have valuable time to carry out the inevitable product improvement that is required as users try it.

Tappan Stove Company, in introducing its new electronic range for the home kitchen, adopted a marketing plan "geared . . . for the long, slow pull."[26] It offered a radically new method of cooking food that required considerable change in the housewife's habits. The price was about $1,000. Dealers had to be educated. When the product was first introduced, General Electric was the only competitor to share the innovating burden of changing consumer habits. These characteristics of the situation suggest the logic of "long-pull" strategy.

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[25] *Advertising Age,* April 11, 1955, p. 39.

[26] *Business Week,* October 29, 1955, p. 62.

Another set of choices related to the speed of market development that will influence the marketing mix can also be stated in terms of extremes—"skimming" versus "penetration" of the market. The marketing executive may decide that the most profitable method is to aim at only a small segment of the market; he will design his marketing plan for the new product with this thought in mind. On the other hand, he may fear competition, thus he may decide to move into the entire market immediately in order to get established before competitors have the opportunity.

DROPPING PRODUCTS

The necessity to contemplate dropping a product can arise on any one of several occasions. Probably the most common occasion is the "normal product obsolescence," which is a decline in demand caused by a shift in consumers' needs, technological change, or significant improvements in rivals' products. Also contributing to the necessity to drop a product are past mistakes in developing products as well as the mistakes inherited from other managements when a company is taken over through merger or stock purchase. The discussion of methods of determining the need for a product decision will be slanted toward the common case of a decline in demand, but many of the methods suggested will also apply when the need for a decision arises from other sources such as from past mistakes.

Determining Need for Product Change

One of the problems of product elimination in a company producing many products is to know when to investigate the possibility of elimination for a given product. The need for an automatic warning system and the use of the product cycle in this connection were discussed earlier. The auto industry has in the past solved the problem in part by the industry-wide practice of changing the body style every three years.

Market research techniques can help. Through the use of the methods of retail-store audits and consumer panels, the marketing manager can determine a significant change in competitive position within 30 to 60 days. Since these data are also required in properly appraising marketing effectiveness, they should not be considered an additional cost. Although these two sources may provide adequate information, they do not provide the complete answer to the problem of product elimination. The methods merely record changes in the market position rather than anticipate changes, and they do not tell *why* the change occurred—this can only be inferred. The actual cause of the change may be any of several causes, and the analysis required to determine the cause takes time.

Buyer attitude surveys can be useful in revealing the need for product change, but surveys are useful only insofar as the survey designer has meaningful hypotheses about the specific changes needed. This means that the surveys are usually worthwhile only after preliminary thinking and investigation has been carried out—which is true of surveys for any purpose.

Dealer surveys can be helpful. The Chevrolet policy is an illustration. It provides for representatives of the Chevrolet's 7,600 dealers to come to Detroit about four times each year to meet with Chevrolet executives for a discussion of suggested product changes. However, the extent to which this policy is motivated by the "politics of marketing channels," which is to get dealer co-operation, is not known. The fact that "Chevrolet generally *anticipates* public tastes as relayed by the dealers"[27] suggests that there might be some motivation other than the desire to obtain information about product changes.

Courses of Action

Once it is clear that a decision must be made about an existing product, the alternatives available to a marketing manager are: (1) change the product, (2) sell it in bulk, or (3) eliminate the product.

Change the Product. Changing the product is the only alternative, aside from the other two more radical decisions, if the marketing effectiveness and factory cost levels are already at an optimum. Practically, however, it may be possible to improve marketing effectiveness through such means as price or promotion adjustments or reduction of production costs. In his survey of over 100 producers of industrial products, Culliton suggests that when things go wrong the practice is to examine (1) factory costs, (2) price, (3) the product, and (4) selling costs.[28]

The marketing research techniques just described, when imaginatively applied, can go far in revealing the product changes essential to success from a marketing viewpoint. After acquiring this specific information and translating it into product design, the marketing manager can pass the recommended design to the production manager for a decision as to its economic feasibility. If it is not practicable, one of the other two alternatives can be examined.

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[27] "The Chevrolet Story: Styling," *Business Week,* October 30, 1954, p. 48.

[28] James W. Culliton, *The Management of Marketing Costs* (Boston: Graduate School of Business Administration, Harvard University, 1948), chap. vii.

Sell in Bulk. By selling in bulk, promotional outlays can be eliminated. Bulk selling may be a real alternative if the product is one in which keen competition has forced the price down, and if it is one for which a big demand exists. The attention of the marketing executive, a scarce resource, can be freed for other uses.

Eliminate the Product. The same tests recommended for deciding whether to add a product can be applied in the decision to drop a product. If long-run analyses of demand and cost suggest an unfavorable projection of profit contribution, the product should be dropped.

There is a practical danger here, however, which is related to the question, "When is a projection of profit contribution unfavorable?" It is unfavorable, assuming fixed facilities, when it is less than the profit contribution of some alternative product that could be produced by the same facilities. The fact that a product is yielding an incremental profit indicates that the product should be continued only if opportunity cost is used in computing the incremental profit.

COMPARISON OF METHODS OF PRODUCT ACQUISITION

Up to this point product additions have been discussed as though all new products originated from within the company. Since additions can also occur by acquisition outside the company, the two methods of product acquisition will be compared.

Acquisition through Internal Development

There are all degrees of internal development, from the one extreme where extensive laboratory research and a long costly development period is required to the other extreme where the only problem is one of obtaining acceptance in the market.

The high degree of uncertainty about the success of a new product discourages internal development as a means of product change. The extensive investment in laboratory research, engineering, and marketing effort causes a failure to be expensive. Finally, even if the proposed product does succeed, there is usually a period of waiting before it begins to contribute to profits.

Current accounting practice and income tax provisions also discourage internal development because the associated expenditures are usually treated as costs of the period in which they are incurred rather than costs of a later period when benefits from the expenditures are received. For any company, particularly for one wishing to expand through outside funds, this unfavorable effect upon the profit picture and its implications for public relations may be of concern.

In spite of the disadvantages, a company may profit handsomely from internal development. If the company establishes an effective product-development procedure, success can probably be far higher than the one-in-five ratio which is often suggested. This procedure should enable management to catch mistakes early in the development process and should incorporate arrangements for obtaining meaningful cost analyses and imaginative demand research.

Acquisition through Merger

Occasionally, the term "merger" is applied only when the purchased company is similar in size to the purchaser, but it is used here without restriction as to company size. Since 1950 there has been, literally, a rash of mergers. Although a merger movement has characterized peak prosperity periods historically, the current movement appears to have more of the "diversification" motive than did previous movements.

Most mergers have a mixture of motives as illustrated by Minute Maid's acquisition of the Snow Crop Division of Clinton Food's, Inc. Through the merger, Minute Maid acquired such products as frozen vegetables, fruits, poultry, and fish, which management stated was the overriding motive—management hoped this merger would stabilize profits. The fact that Minute Maid purchased 15 per cent of the Florida orange crop as a result of the merger suggests that the merger had a "stabilizing" effect upon buying prices. Also, with approximately a third of the frozen orange concentrate market, the company was probably in better position to lead in setting prices in the industry. Being a price leader was particularly advantageous because of the fluctuating nature of fresh-orange prices and the fact that the concentrate was experiencing the usual decline in prices that characterizes a new product. In 1949–50, the price was 26 cents per 6-ounce can, but by 1953–54, it had fallen to 16 cents in the face of an increasing consumer price level.[29]

A Federal Trade Commission study of mergers has nicely summarized the decision whether to develop internally or to buy:[30]

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[29] "The Minute Maid Dilemma: Merging for Better Balance," *Business Week*, December 11, 1954, pp. 42 ff.

[30] Federal Trade Commission, *Report on Corporate Mergers and Acquisitions* (Washington, D.C.: U.S. Government Printing Office, 1955), p. 10.

If he builds, he creates additional capacity and competition, perhaps in an industry already well supplied; if he buys he reaps the possible advantages of increasing his capacity, acquiring some or all of the market previously served by a competitor, and at the same time may remove or nullify some competition in his market. These competitive considerations are especially important if he is diversifying into products new to him, but in the production of which others are well established.

The merger process confronts the acquiring company with much less uncertainty and with the capitalization of all development costs. But, and this is important, development profits are also capitalized; therefore, unusually high profits are much less likely under the merger method of product additions. Also, the 1950 legislation against mergers, discussed in Chapter 9, is serving as a deterrent to merger in the case of large companies with large market shares who use the merger device to expand in these particular industries.

BALANCE IN THE PRODUCT LINE

Another important kind of product decision deals with "product mix"—the proportion that the sales of each product constitutes of total sales. It is often profitable to modify these proportions by promotion, altering the prices, or even rationing.

The problem of correct product mix is illustrated by a brewery adding a product to absorb the seasonal excess capacity that characterizes such an enterprise in autumn and early winter.[31] Let us call the new product "ale." Sales of the ale proved to be exceedingly good, and to meet this demand for ale, management was faced with the decision to reduce beer production. By reducing beer production the combined dollar sales volume of both products could have been increased 40 per cent as shown by the curved top line of Figure 50. A careful cost analysis, however, showed that if total sales were increased by 40 per cent through increasing the proportion of ale, profits would decline 80 per cent, even though the margin on direct cost was $1.13 per case for ale and only 62 cents per case for beer. From the analysis it was learned, as illustrated in Figure 50, that a given capacity of plant would produce a greater quantity of beer than it would of ale and that the most profitable "mix" of the two products as shown by the peak of the irregular line in Figure 50 was considerably less ale and more beer than indicated by the optimum total dollar sales. As is often the case, as a decision criterion, "total dollar sales" will not yield the optimum profit. Even more important, "total dollar sales" is highly misleading because it suggests that a major variation in the product mix does not make much difference. However, as the bottom "curve" in Figure 50 shows, a little change in product mix can make a big difference in profits. This example illustrates why it is often economical to do research.

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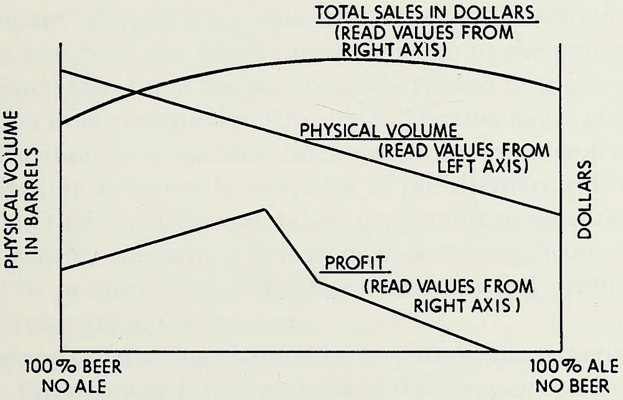
[31] The experience cited here is not actually that of a brewery. The company is disguised for reasons of company security.

The type of analysis represented in Figure 50 indicates that an investigation of demand and cost will provide the necessary data for a product-mix decision. Typically, short-run incremental concepts are appropriate. Since variations in promotion are one way of regulating the product mix, the computation of incremental promotional costs, however, raises the complex question of whether or not a portion of the promotional outlay may not be of an investment nature.

FIGURE 50

Beer-Ale Product Mix



SUMMARY

Product decisions are an important area of study for marketing executives; however, emphasis upon product decisions is a relatively new concept. Product decisions usually involve large, long-term financial commitments and often serve as a point of orientation for designing the other elements of the total marketing plan. This is an area where the social sciences may throw considerable light as illustrated in the model of buyer behavior.

Product decisions normally involve considerable risk. A carefully thought-out and systematic procedure for adding and dropping products, a procedure that incorporates imaginative market research to evaluate the demand and cost elements, can, however, reduce the risk. The appraisal of new products is perhaps the most important feature of the new-product procedure.

New products may be acquired either through internal development or through merger. Although acquisition through internal development involves greater risk, the opportunities for profit typically are correspondingly greater.

Chapter
11

MARKETING CHANNEL DECISIONS

The concept of structure of distribution, a brief description of the American structure, the forces causing change in the structure, and the locational forces that are so intimately related to the structure of distribution were presented in Chapter 8. The discussion of the structure of distribution is essential background for this chapter because the distribution structure is composed of the alternative distributive institutions, their capacities, and their geographic or locational coverage from which a company selects its own marketing channels for distributing its product. Also, many marketing channel problems arise because of changes in the structure.

A company's marketing channel is the path in the structure of distribution through which the products of the company reach the ultimate user. It will be recalled from Chapter 8 that the activities of collecting, sorting, and dispersing are carried out in this process of the product passing through the structure of distribution. The two elements in this flow of products are (1) the flow of transactions and (2) the flow of the physical product. These two elements tend to coincide throughout marketing channels, but exceptions occur. For example, the use of a broker involves only the element of transactions, while when a wholesaler is involved, both elements typically coincide. A decision by General Electric illustrates another kind of an exception that may occur. At present, General Electric, along with Westinghouse and Frigidaire, often ships appliances directly to the retailer and bypasses the wholesaler, although the wholesaler continues to carry out the transaction function even though he does not handle the physical product. This new plan permits the reduction of transportation cost because by "mixed shipments" various appliance items are combined into a single shipment and carload rates are granted the shipper.

One of the major considerations in studying marketing channels is to recall from Chapter 8 how the geographic dimension of demand varies from place to place. A company's channels must be made to conform to the geographic variations in demand, with the consequence that a company often uses different channels for different parts of the country. Most channel decisions are concerned with selecting a route through the existing distributive structure, but occasionally a new channel that is an addition to the existing structure must be constructed in part or in its entirety, which also adds to the variety of channels:

> A . . . recent development has grown out of the use of anhydrous ammonia as a fertilizer. This product must be forced into the soil in a semiliquid or gaseous state and special equipment is required for this purpose. New distribution channels have arisen throughout the southern states within a period of only three or four years. These marketing establishments require several pressure storage tanks and thus resemble bulk tank stations for petroleum products. Applicator trucks load from these tanks and radiate out into the surrounding farming area.[1]

Most of the alternatives of marketing channels available to the manufacturer were summarized in Figure 45, shown on page 234. The possible combinations are almost limitless.

There is an important difference between channels for industrial products and consumer products. Probably the largest proportion of industrial products are distributed through Channels 9 and 10 shown in Figure 45. Typically the product is distributed either through the manufacturer's branch and then the wholesaler or directly to the user. In either case the retailer is omitted. Alternatively, relatively few consumer products are distributed directly to the consumer, which is shown as Channel 2 in Figure 45, the consumer-product counterpart of Channel 10.

In order to simplify the exceedingly complex problem of marketing channels, the problem will be discussed primarily from the manufacturer's point of view; however, the discussion will be relevant for the marketing manager of the distributive institutions that make up a channel. In the first place, the middleman must accurately appraise the significance of his company's role in the channel. An incorrect appraisal can result in bad decisions on his part, which may seriously damage his company. Some retailers, for example, have been unwilling to take on new products merely because this would be a change from established procedure. Also, suggestions on managing a distributive institution will be implicit in the discussion of the middleman's business operation.

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[1] Robert E. Sessions, "Effective Use of Marketing Channels," in Richard M. Clewett (ed.), *Marketing Channels* (Homewood, Ill.: Richard D. Irwin, Inc., 1954), p. 408.

An understanding of the middleman's operation is essential for the manufacturer to predict the reactions of a middleman to a change in the existing channel policies. Manufacturers often criticize the middleman for not responding quickly to profit opportunities. Much of what may appear as "peculiar" behavior, however, arises from the middleman's type of operation. "Profit contribution" of a product is usually difficult to measure accurately in a wholesaling or retailing company.

Since there is a great variety of possible marketing channels, further simplifications will be necessary. First, only wholesalers and retailers will be dealt with explicitly and the important category of brokers and agents will generally be omitted. Secondly, the term "middleman" will be used to mean both the wholesaler and the retailer as though the problems in selecting them were identical.

SIGNIFICANCE OF MARKETING CHANNELS FOR MANAGEMENT

In a number of respects the selection of marketing channels is important. The reasons for the importance of the correct selection of marketing channels will be discussed in the paragraphs that follow.

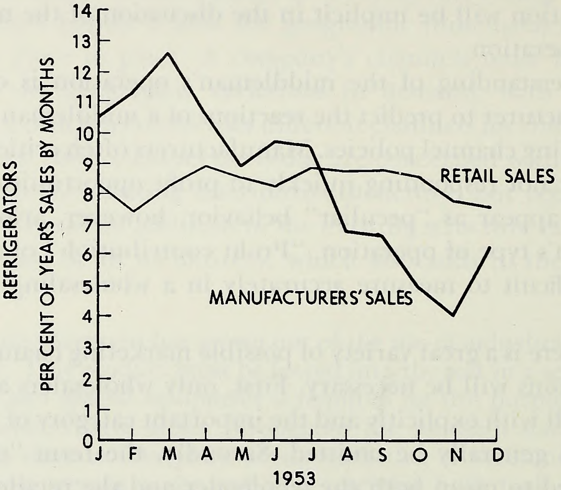
The price which the ultimate user will pay is strongly influenced by channels. For example, the margins required by wholesalers typically make up about one eighth of the price to the ultimate user; thus, if the wholesaler can be eliminated, the price can be reduced. Buyers are responsive to prices, and the cost of *distributing* a product is often a serious limitation in lowering the price so that the product will reach a wider market.

An appropriate selection of channels can reduce fluctuations in production. The growing emphasis upon security of employment has made stability of production an important consideration. Figure 51, which graphically compares the retail and manufacturing levels of refrigerator sales, illustrates the stability-of-production problem—

even though retail sales are fairly stable, manufacturers' sales may fluctuate sharply. The situation raises real problems of inventory control for both middlemen and manufacturer.

FIGURE 51

Refrigerator Sales at Different Levels in the Marketing Channel



Source: *Business Week,* October 2, 1954, p. 68.

The procedure of developing channels is slow and expensive; therefore, careful planning is required. This implies that (1) time and cost required in developing channels can be a serious deterrent to a company planning to enter a new industry; and (2) the future locational patterns and structural changes in distribution must be predicted, which, in turn, require an investigation of the determinants of the location pattern and of the structure of distribution (as developed in Chapter 8).

Still another point of significance is that in considering channel problems cyclical fluctuations in economic conditions must be viewed in perspective. When periods of scarcity in relation to demand bring a "seller's market," the practice of "selective selling" (which consists of cutting out all outlets except those that are most profitable for the manufacturer) may appear particularly enticing. Immediately following World War II, selective selling was one of the most popular marketing topics. Within a few years, however, companies that had stringently applied the principle of selective selling found themselves without adequate outlets to compete effectively in a "buyer's market." The experience of Bigelow-Sanford Carpet Company suggests that it made this mistake. In 1954 this company announced a new plan of "dual distribution with a second line that sells through wholesalers." This drastically reversed "the postwar trend to greater selectivity of outlets."[2]

The selection of channels also severely limits the nonchannel alternatives available to a manufacturer. In other words, when a manufacturer decides upon the choice of channels, he simultaneously makes a number of other decisions. If, for example, a manufacturer decides to use the services of brokers, wholesalers, and retailers, the general form of his pricing problem to distributors is determined. The choice of channels will also influence product decisions, which is illustrated in the outboard motor industry. There is good evidence of a trend toward greater horsepower in the demand for outboard motors. Outboard motors have been put to new uses that require more power, such as water skiing. Five years ago, for example, one of the largest producers in the outboard motor industry sold approximately 80 per cent of its production in the higher ranges of horsepower, specifically the "over-12-horsepower" segment. This company was contemplating the elimination of small motors from its product line, but since the industry practice is "exclusive dealing," the proposed narrower line would probably have resulted in a serious loss in dealers. Third, the promotion alternatives are reduced by the selection of trade channels.

Finally, the relations between the manufacturer and the middleman pose some exceedingly difficult problems for both. The basic source of difficulty is the inherent conflict of interest between the two, which must not be glossed over if their relations are to be understood. The manufacturer wishes the middleman to sell as much as possible for the minimum possible margin; on the other hand, the middleman wishes to maximize his own profits. The same conflict exists, of course, between two middlemen, such as the wholesaler and the retailer, just as it does between any buyer and seller. The area of mutual interest, however, is obviously far greater than the area of conflict.

The conflict is compounded by some additional complications. First, the retailer is not so well informed in some respects as the manufacturer. Because of his type of operation, the middleman may not evaluate profit alternatives as well as the manufacturer. Common costs in retailing pose a relatively greater problem than they do in manufacturing, and cost accounting systems are typically more elaborate in manufacturing enterprises. Finally, the retailer does not have a market research staff to provide market information. Yet the retailer may sometimes be better informed about his specific market than is the manufacturer.

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[2] *Business Week,* July 24, 1954, p. 78.

Second, Chapter 8 emphasized the economic forces that lead to change in the structure of distribution and the locational pattern of markets that create conflict. These changes are seldom understood at the time, and they may violate the middleman's traditional concepts of "right" so that serious tensions can occur in the relations between the links in the distributive chain. This problem is probably nowhere more dramatically revealed than in the automobile industry in late 1955, which resulted in two congressional investigations and which brought changes in manufacturer-dealer contractual relations.[3] The extreme situation in the industry was represented by General Motors with its 18,000 dealers. Although there were many issues, the essence of the problem was that General Motors set a standard of performance (a quota of automobiles to be sold) for each of its dealers which if not attained could lead to cancellation of the contract between the dealer and General Motors. The dealer charged that he had no effective means of appealing the cancellation, which allegedly became a serious problem because the standard of performance was unrealistic for some of the dealers.

The tension arose as a result of changing conditions and the necessity for adjustment. In the immediate postwar period, when the demand for automobiles outran the supply, dealer profits were exceedingly high. In this lush period dealers became less concerned with keeping costs at a minimum and with promotional techniques. After 1952 supply began to outrun demand. Consequently, the manufacturers felt an increased need for promotional effort at the retail level. At the same time the manufacturers began to compete vigorously and to demand a level of performance by the dealer heretofore unheard of. Finally, the measures of performance applied to particular dealers did not always take into count the geographic shifts in markets that had occurred.

After the congressional hearings, General Motors initiated a number of changes in its dealer-relations program. A new position in the company, Executive Vice President in Charge of Dealer Relations, was created. There were changes in the method of computing the standard of performance expected of a dealer. The entire cost of "warranty adjustment," which is the free service provided for a new car, usually for 90 days after purchase, was assumed by General Motors. This cost is a significant portion of a dealer's total cost of operation. An "impartial umpire," a retired federal judge, was appointed to hear all dealers' appeals from cancellation of their franchise by General Motors. There were other changes, but these were some of the more significant ones.

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[3] Senate Subcommittee on Antitrust and Monopoly, *A Study of the Antitrust Laws* (Report No. 1879, 84th Cong. 2d sess.) (Washington, D.C.: U.S. Government Printing Office, 1956), pp. 76–97. The law, the Automobile Dealers Franchise Act, resulting from these hearings was discussed briefly in Chapter 9.

The automobile situation is an extreme case, particularly in the sense that the bargaining power was so unequal and the political implications so important. It is clear that at least the larger manufacturers were out of touch with the dealers and that the dealers found that the adjustment to the changes in demand was uncomfortable. Perhaps the greatest lesson to come out of the hearings was that manufacturers must have an effective feedback device by which the dealers' problems and attitudes toward company policies are transmitted to the management of the manufacturer.

ANALYSIS USED IN SELECTING MARKETING CHANNELS

The problem of selecting channels is quite different for established (buyer accepted) products than it is for products without buyer acceptance. The analysis will be set forth in this section in terms of established products; the problem of new products will be discussed briefly in a later section.

Many companies do not know their distribution channels. This may seem somewhat surprising, but in many cases a company has contact with only the first link in the distributive chain. A company that has done no advertising to end-users of its product often lacks specific information on the nature of its distribution channels. In fact, finding this out with any degree of accuracy can be a major research project. Yet the information is an essential step in deciding whether the channels should be changed. There are various methods a company can use to obtain information about its channels of distribution. One method, the "invoice-trace method," is suggested as being useful under certain conditions. The idea of the method is to select a sample of the product at the manufacturer's level and to follow it through its channels to the end-user. The sample can be secured through the random choice of sales invoices. If the next stage in the channel is found to be a middleman, a representative sample is taken of his invoices, and so on until the end-user is reached. This type of analysis will throw light on many questions, such as the magnitude of inventories at each level of distribution, how the product characteristics are viewed by both the intervening middlemen and the end-users, and what the channels are in fact.[4]

One of the most common difficulties that manufacturers face in their relations with middlemen, as mentioned earlier, is the failure of the manufacturer to appreciate that a middleman's operation typically differs from that of the manufacturer. An analysis of this operation will be helpful in understanding why the middleman behaves as he does.

Characteristics of Middleman's Operation

Typically, a middleman has inadequate demand and cost data on which to base a rational choice between whether to sell the brand of Manufacturer A or the brand of Manufacturer B. Let us first examine why this is true and then investigate its significance for a manufacturer faced with the problem of choosing marketing channels.

Middleman's Information Not Adequate for Decision. Why adequate cost and demand data are not available can best be explained in terms of the supermarket, with which we are all familiar. Although the operations of other types of middlemen, such as wholesalers and brokers, differ somewhat from that of a supermarket, they encounter the same basic problem in general. The problem of inadequate data arises because of the large *number of products sold* in relation to the small value added by the enterprise to each product. This condition has two implications: (1) allocation of cost to each product becomes difficult because of common costs, and (2) there is less justification for careful analysis and executive consideration of each choice of product. The result is that rough rules of thumb rather than carefully calculated profit estimates guide decisions concerning the individual items to be stocked.

Ideally, in choosing whether to stock Brand A or Brand B, a supermarket manager should merely compare the contribution to profit made by each of the two brands and then stock the brand making the greatest contribution. This method of decision requires estimates of sales and costs for some given period. Now, let us discuss the limitations in terms of the practical situation.

What is the source of sales estimates? If the supermarket manager is in the fortunate position of having sold the product in the past, then he can probably glean the historical sales data from his records. Unless he has very recent data, however, it is doubtful whether he can justifiably project them into the future. If the manager lacks experience with a particular brand, he may transfer his experience with other brands of the same product or closely related products to the problem concerning the brand in question. He can experiment effectively except where considerable time is required for consumers to adjust their purchasing habits. Where a lag in the response of purchasing behavior exists, such a long period is required for the experiment that other effects on sales can make it impossible to isolate the effect of brand alone. Also, the urgency of decision limits the use of longer experiments. The potential for experimentation is great, however, because, for example, the retailer finds it much easier to collect the sales data in an experiment than does the manufacturer.

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[4] For more details on the method, see an unpublished manuscript by F. L. Fletcher, "Developing Procedures in Industrial Distribution Research," given before the American Marketing Association's June meeting, 1954.

What is the source of cost estimates? This poses a really difficult problem. One cost item, cost of goods sold, which is usually about 85 per cent of sales for supermarkets, is easily ascertainable, but a review of the following expenses (other than cost of goods sold) taken from the experience of a well-managed and profitable supermarket will suggest the complications in tracing costs to individual brands:

Item	*Cost*	*Per Cent*
Freight and cartage	$ 3,432.53	2.7
Cleaning and laundry	1,568.70	1.2
Rent	11,644.84	9.2
Salaries and wages	66,876.92	53.0
Heat, power, and water	3,314.49	2.6
Repairs and maintenance	1,182.69	.9
Supplies	9,047.04	7.1
Advertising and entertaining	2,206.77	1.7
Auto and storage	1,044.71	.8
Dues and donations	299.50	.2
Legal audit and banks	900.00	.7
Insurance and night watchman	1,015.72	.8
Office and phone expense	407.15	.3
Sales tax	21,636.43	17.1
Excise, local, and state sales tax	2,144.13	1.7
		100.0

Taking the first significant item, which is rent (9.2 per cent), the manager immediately runs head on into the problem—rent can be allocated to a particular brand only by some arbitrary method. It is a common cost. Salaries and wages (53.0 per cent) are only a little better—time and motion studies can help, but not much. Supplies (7.1 per cent) cannot be traced—a paper bag is usually necessary for all the items on the consumer's shopping list, not for just one item. Thus, more than two thirds of the merchant's cost, exclusive of the purchase price, clearly cannot be traced to individual brands. Some of the items probably do not vary with the decision and are therefore irrelevant. Except for sales tax (17.1 per cent), it is difficult to trace the remaining expense items to particular grocery items. There are "product" decisions that a retailer must make, however, in which costs can be traced, such as space for a greengrocery department versus the same space used for dry groceries. In this situation, the cost of ice could be traced to the greengrocery department.

These limitations upon rational decision which have been discussed in terms of the supermarket are inherent in a middleman enterprise. In addition, much of the industry as measured by *numbers of units,* instead of volume of sales, is made up of small companies, e.g., the "mom and pop" stores. They typically have ill-defined goals against which to compare alternative courses of action, which seriously limits rational choice. Also, their planning horizon is short; they tend to think in terms of one day only. They have limited perspective on changing conditions, and often they misinterpret these conditions. Finally, and the source of much of the difficulty, entry into the industry is easy, mortality is high, and, thus, relatively inexperienced managers are common.

Product-selection decisions for which adequate cost and demand data are available are in the minority. It is not surprising, then, that retailers tend to base their judgments of relative profitability of brands on *relative percentage markup*—for example, a brand that offers a 16 per cent markup is "more profitable" than one with a 14 per cent markup. This method of decision assumes, of course, that the prices, rates of sale, and costs of handling are identical among the brands in question. Prices may be similar, but rates of sale often differ sharply among brands, and costs of handling also differ. The retailer does not necessarily ignore the rate of sale, but his information is so unsatisfactory that he tends to put greater weight on markup.

The consequences of using "relative percentage markup" untempered by judgment is illustrated by the "dime stores," which at one time made heavy use of this criterion. One chain went so far as to develop a bonus system for its store managers that gave weight to the size of the margin on products stocked. Store managers then proceeded to squeeze out the smaller-margin brands; as a consequence, over a period of years their total sales of these products dropped, even though industry sales of the products were expanding substantially. The manufacturers of the brands that were forced off the variety-store shelves turned to grocery outlets.[5]

Gross profit per square foot of display space is probably the most useful criterion that can be found. Although the incremental net profit rather than the average gross profit is conceptually correct, average gross profit is easier to compute and is usually a satisfactory approximation. The average gross profit per square foot is computed as follows:

$$\frac{\text{Markup (in absolute terms)} \times \text{Rate of Sale}}{\text{Number of Square Feet of Display Space}}$$

This method involves certain significant assumptions:

1. It assumes that all display space is equally effective in selling products. Such an assumption does not hold in many instances; there are "hot spots" in a store. The manager with experience acquires a judgment as to the location of these positions; thus, most of the choices that he makes concerning the use of the space relate to different brands of a given product, and the choices do not require a comparison of widely different areas in the store.
2. It assumes that incremental costs vary directly with the volume of sales of each brand. When considered from a practical standpoint, this method avoids the cost-allocation problem; earlier discussion of the various cost items suggests, however, that the only major cost varying with volume is cost of goods sold. This cost varies directly with volume, except in extreme cases where quantity discounts by the manufacturer would cause a decreasing unit cost.
3. It assumes that all display space is fully utilized. If this is not true in a given situation, the amount of space used should not be a consideration. In practice, however, all display space is usually fully utilized.

The use of refined cost-analysis methods combined with machine accounting can improve the quality of both cost and sales information, but whether or not these methods are economically justified depends primarily upon the scale of retailing. A study of turnover in supermarkets by the U.S. Department of Agriculture suggests that research can be useful.[6] Records of sales of similar items were kept for a four-week period in 1953 in nine supermarkets over the country. Figure 52 summarizes the results. In Store A, for example, in 15.5 per cent of its total items, over 30 units were sold per item; at the other extreme, no units were sold in 14.9 per cent of its items. The variation among stores in turnover is striking. In Store B only 13 per cent of its total items had sales of over 30 units per item, while store H recorded sales of over 30 units per item in 40.1 per cent of its items.

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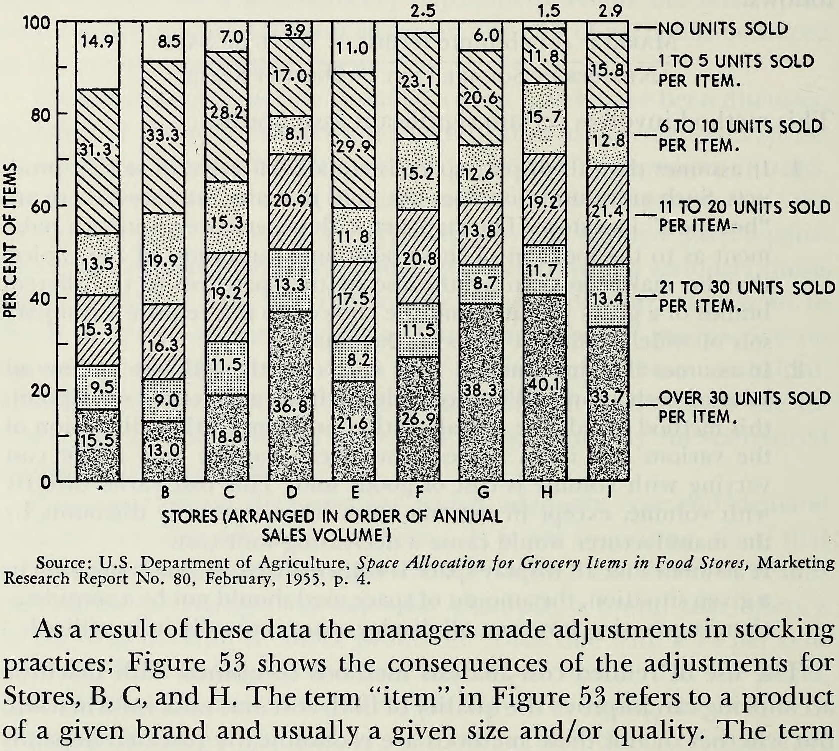
[5] Richard D. Crisp, "Analytical Approach to Channel Policies—Sales Analysis," in Clewett, *op. cit.*, pp. 430–31.

[6] U.S. Department of Agriculture, *Space Allocation for Grocery Items in Food Stores,* Marketing Research Report No. 80, February, 1955. Also, see U.S. Department of Agriculture, *Better Utilization of Selling Space in Food Stores,* Marketing Research Report No. 30, November, 1952.

FIGURE 52

PERCENTAGE OF ITEMS WITH DIFFERENT UNIT SALES PER ITEM IN NINE MIDWEST STORES DURING A FOUR-WEEK PERIOD, 1953



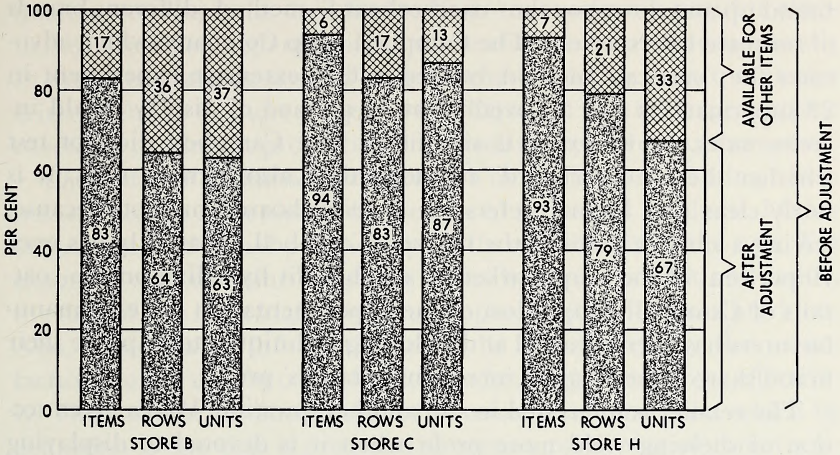
Source: U.S. Department of Agriculture, *Space Allocation for Grocery Items in Food Stores,* Marketing Research Report No. 80, February, 1955, p. 4.

As a result of these data the managers made adjustments in stocking practices; Figure 53 shows the consequences of the adjustments for Stores, B, C, and H. The term "item" in Figure 53 refers to a product of a given brand and usually a given size and/or quality. The term "row" refers to shelf space, and "unit" refers to the total number of units of all items on display in the shelf space under consideration. In Store B, for example, the manager reduced the number of items stocked by 17 per cent, made 36 per cent of the space available for other items, and reduced the number of units of all items on display by 37 per cent.

For at least three reasons, low turnover does not automatically make an item a candidate for elimination: (1) A large margin can obviously offset low turnover. As a practical matter there is typically considerable uniformity in margins among products, but there are exceptions.

FIGURE 53

Proportion of Grocery Items, Rows, and Units Remaining on Display after Adjustment in Three Stores



Source: U.S. Department of Agriculture, *Space Allocation for Grocery Items in Food Stores,* Marketing Research Report No. 80, February, 1955, p. 7.

The supermarkets have added cosmetics because of their higher markup. (2) There is a possibility of an interrelationship among items on the demand side so that dropping one item will decrease the sales of the related item. (3) Although the fixed nature of much of the retailer's costs has been emphasized, some of them may vary with the volume of individual items and thus the low-turnover item incurs less cost than a high-turnover item. Handling costs may be an example. If clerk service is used, personal-selling time may vary. Pilferage is still another possible variable cost.

Significance of Middleman's Procedure to the Manufacturer. The tendency for the middleman to use "relative percentage markup" as the criterion in deciding which brands to carry may seem to be irrational behavior on the surface, but it does appear more rational when the situation is understood. The manufacturer probably can work more effectively with middlemen by bearing this in mind rather than condemning them for their stupidity and poor management.

This situation also opens up possibilities for the manufacturer to co-operate with the middleman in carrying out experiments that will throw light on the relative profitabilities of various products or brands and methods of operation. Campbell and Heinz soup companies, for example, advocate different methods of display. Both favor devoting all shelves of a given section of shelving to soup rather than interspersing with nonsoup products. They differ, though, as to which display method should be used—the "vertical" method (brands are not interspersed, which means that there is a solid wall of the same brand up and down) or the "checkerboard" method (different brands of soup are interspersed). The Campbell Soup Company, which advocates the "vertical" method, carried out an extensive experiment in 22 supermarkets and "proved" that its method of display would increase sales. However, it is significant that Campbell did not test whether the "checkerboard" method might also increase sales. It is fairly clear that Heinz prefers the "checkerboard" method because, having a smaller share of the market (Campbell apparently has over 70 per cent of the soup market), it can benefit by riding on the coattails of Campbell Soup. Most of the experimentation done by manufacturers has been directed at developing techniques to improve their brand share rather than at increasing retailers' profits.

The retailer is interested in still another question. Will a given section of shelving yield more profit when it is devoted to displaying soups than to some alternative product?

There are significant opportunities, however, for manufacturer-middleman co-operation that can yield mutually beneficial results. The manufacturer, for example, often finds that he can profitably devote effort to helping the middleman solve his management problems. The manufacturer may go so far in this co-operation as to provide formal training courses for his middlemen in how to manage their enterprises. The number of new, inexperienced owners in the industry and their level of education indicates the potential for this activity. Manufacturers and middlemen often co-operate on research, although it is probably safe to say that in general the manufacturer bears the burden of financing the research. Early in the history of prepackaged ice cream cartons, for example, manufacturers were faced with the problem that drugstores offered resistance to handling prepackaged ice cream because bulk ice cream offered a higher margin. The carton manufacturers carried out a cost analysis of drugstore operations and found that the labor costs of handling bulk ice cream as well as its shrinkage more than offset the higher margin.[7] Thus, selling to middlemen often consists of far more than merely persuading the middleman that your brand is better than the brand of your competitor.

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[7] Sessions, *op. cit.*, p. 415.

Qualitative Criteria for Selecting Channels

The quantitative analysis discussed in the next section requires that qualitative criteria be used first to limit the numerous possible channels to a small enough number that research can be used economically in evaluating alternatives. The goals that underlie these qualitative criteria tend to be those suggested in Chapter 8: maximum geographic coverage, maximum promotional expenditures, and minimum cost.

Channels for Industrial Products. The logic of marketing channels stands out most clearly in the case of industrial products. Manufacturers of industrial products typically sell directly to the user. For example, with machine tools such as drills, punch presses, and lathes, the unit of sale has a high value, as compared with consumer products. Also, considerable information must be transmitted by the manufacturer to the user in order for the product to perform most effectively. The extreme instance is that of a custom-made machine, which by definition is one that is produced to meet a particular customer's requirements. The buyer usually has objectively some measurable criteria of selection or product cues, such as volume of production, to apply in choosing between the machines of two manufacturers, and he must have information on each of these machines. In addition, some criteria are qualitative and require more effort by the manufacturer to communicate them. Finally, since the manufacturer must service the product once it is in use, direct channels are encouraged. All of these characteristics tend to justify the seemingly high cost of direct selling.

As the number of buyers increases or the buyers are more dispersed geographically, the manufacturer is likely to use an intermediary, often a manufacturer's agent. Also, as the product becomes more standardized among buyers, its value lower, and less technical information required, a wholesaler, called a "mill supply house," may be substituted for the manufacturer's agent.

Channels for Consumer Products. Channels for consumer products are typically more indirect than for industrial products; consequently, the logic behind the design of channels for consumer products becomes more complex. It must be borne in mind, however, that some industrial products are distributed in a considerably more indirect manner than are some consumer products. Small manufacturers often buy certain minor component parts from the local hardware store which has been served by a wholesaler who, in turn, has received the item from a manufacturer's agent. Alternatively, there are direct channels among consumer products. In small towns, for example, milk often goes directly from the producer (farmer) to the consumer.

Company practice, supplemented by logic and a limited amount of fundamental research, suggests that the following are some of the qualitative criteria for selecting the channels for consumer goods:

1. *Nature of the Commodity*
   a) Perishability-durability
   b) Magnitude of unit value
   c) Necessity-luxury[8]
   d) Consumer habits with respect to place of purchase
2. *Structure of Manufacturing*
   a) Degree of concentration
   b) Location of production in relation to user demand
   c) Width of product line
3. *Structure of Retailing*
   a) Number of stores selling mainly this product
   b) Location of stores in relation to manufacturers and consumers

The four aspects of the nature of the commodity make considerable difference in the nature of the channel. Perishability is a condition encouraging a direct channel between producer and consumer. Milk is an example. A product at the other extreme of the perishability-durability continuum tends, however, to have fluctuating sales, a condition that also encourages direct channels because fluctuations in consumer demand become intensified the further they are transmitted back toward the manufacturer.

Higher-value products tend to directness because they require greater promotional effort. The source of this tendency for greater promotional effort to be used is probably that consumers will search ("shop") for a product of higher unit value; the Importance-of-Purchase variable in the model of buyer behavior incorporates this effect.

In terms of the necessity-luxury continuum, necessities lend themselves well to indirectness. Consider an example that illustrates the combination high-price-luxury characteristics versus low-price-necessity characteristics. The Parker Pen Company in early 1954 introduced to the market a pen called the "Jotter." This ballpoint pen sold for $2.95, whereas other Parker pens ranged from $5.00 to $12.50.

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[8] The "necessity-luxury" criterion is ambiguous. It has been suggested that a good definition for a "luxury" is something that some people think that others should do without. The criterion is an attempt, however, to incorporate some of the nonfunctional aspects of consumer attitudes, and it is related to such things as prestige.

The "Jotter" is being distributed through drug, tobacco, and similar wholesalers, but the more expensive Parker pens are distributed directly to retailers.

The character of consumer purchasing habits with respect to place of purchase exerts a force. It has been claimed, for example, that a paint company attempted to distribute a new self-polishing floor wax through company-owned retail outlets and failed. Consumers tended to purchase floor wax in grocery outlets rather than make a special trip to a paint store.

The structure of the manufacturing level of the industry exerts an influence upon the method of distribution. With respect to degree of concentration, the larger the manufacturer the more profitable it may be for him to absorb some of the distributive functions and to bypass the wholesaler.

A second issue in relation to the organization of the manufacturing level is how manufacturing is geographically located in relation to consumer demand. The more widely dispersed the manufacturing level is geographically, in relation to consumer demand, the greater the pressure to indirectness through the use of the wholesaler because products must be *collected* by the wholesaler from a larger area, which enhances his role in the distributive process. An instance of the opposite extreme—the geographic concentration of production—and the tendency to direct selling is illustrated by General Electric's location of its major appliance production at Louisville, Kentucky. As a result of this concentration, General Electric now ships directly to the retailer since freight costs can be cut through mixed shipments.[9] The wholesaler, however, will continue the rest of the usual functions.

Another feature of the organization of manufacturing is the width of the product line—the wider the line, the greater the tendency to serve the retailer directly because it is more convenient for the retailer to purchase from as few sources as possible. Also, the manufacturer's personal-selling costs may be reduced because the salesman can sell more at a given salary. The introduction of new machinery in the British cast-iron pipe manufacturing industry caused the manufacturers to specialize more, to concentrate on a more limited range of products. Thus, technological change encouraged a narrower product line with a consequent increase in the use of wholesalers.

The structure of retailing influences the choice of channels. One important feature of the structure of retailing is the degree of concentration. For example, low concentration—the availability of a large number of retailers—favors using the retailer rather than bypassing him and going directly to the consumer. It is usually easier to use existing channels than to establish new ones.

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[9] *Business Week,* November 7, 1953, p. 124.

Another structural feature is the location of retail stores in relation to the consumers and the manufacturer. It is important because the retail locations must be such as to provide relatively greater convenience to the potential consumers than would be provided if they bought directly from the manufacturer.

In a study of 93 products sold by independent retailers in Britain,[10] it was found that the following characteristics existed when the manufacturer sold through a wholesaler: (1) unconcentrated manufacturing, (2) unbranded products, (3) large number of retail outlets handling the products, and (4) products of low unit value.

Conversely, when the manufacturer sold directly to the retailer, the following characteristics existed: (1) concentrated manufacturing, (2) branded products, (3) fewer retailers, and (4) products of high unit value.

As a guide in selecting channels, products are often classified according to "convenience," "shopping," or "specialty." This classification is based on the amount of effort the consumer-buyer will expend in purchasing the item.[11] The consumer-buyer devotes the least effort to "convenience" items, medium effort to shopping items, and the most effort to "specialty" items. The model of buyer behavior incorporates this effect in the Importance of Purchase as an exogenous variable.

As a result of applying the qualitative criteria the manufacturer may decide upon one of two extreme alternatives: intensive or selective distribution. Intensive distribution means that the manufacturer will place his product in every available outlet; selective distribution implies that the manufacturer will select from among the available outlets rather than to use all of the outlets. Although the extremes are seldom used, this way of examining the channel problem may help to clarify the issues in arriving at a stage where more quantitative analysis can be applied.

A third type of policy called "exclusive distribution" arises when selective distribution is pushed to the extreme of having only one dealer for each geographic area. At the same time, the middleman usually agrees to follow the practice of *exclusive dealing,* that is, not to handle competing products. The major advantage of exclusive distribution to the manufacturer is the middleman's willingness to promote the product more intensely. Also, the middleman is more willing to carry a complete stock of the manufacturer's line and to provide repair service. Fewer outlets facilitate the enforcement of resale-price maintenance. The manufacturer's costs are reduced because his salesmen call on fewer accounts. From the middleman's view, exclusive distribution provides territorial protection, which means that competition from other middlemen selling the same brand will be less for the middleman and that he can reap the reward for investing in market-development expenditures. It is believed that the effect of "exclusive dealing" on competition may run counter to the Clayton Act. The effect upon competition can be illustrated by taking the extreme case —if a manufacturer has exclusive contracts with a large number of dealers, a competitor may find it difficult, if not impossible, to enter the market.[12]

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[10] James B. Jefferys, *The Distribution of Consumer Goods* (Cambridge, England: Cambridge University Press, 1950), pp. 49–52.

[11] For a fuller statement of the definitions and their limitations, see Charles F. Phillips and Delbert J. Duncan, *Marketing: Principles and Methods* (4th ed.; Homewood, Ill.: Richard D. Irwin, Inc., 1960), pp. 58–60.

Profit Criterion in Selecting Channels

From applying the qualitative criteria discussed previously, a manufacturer can limit the possible number of channels to a feasible few, and from these he can select one basic model with perhaps a few variations. The profit criterion, which requires quantitive estimates of sales volumes and costs, is used for the second step in selecting marketing channels. The source of such estimates can be the manufacturer's own experience with this or related products or it can be his competitor's experience. Ideally, the profit goal would be applied, which would bring together estimates of demand and the cost for each possible channel. The nature of the problem clearly indicates that the long-run optimizing analysis is appropriate for the decision.

Certain principles of model design can be helpful in formulating the basic channel system and in avoiding later mistakes.[13] One principle pertains to market coverage and promotion. The model should provide for access to a given proportion of the market and for a given amount of promotion. The size of the middleman's margin required to obtain the necessary market coverage and promotion should be incorporated.

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[12] For a discussion of the legal tests applied to determine the effect on competition, see William F. Brown, "The Effect of Federal Legislation upon Marketing Channels," in Clewett, *op. cit.,* especially pp. 485–90.

[13] See Sessions, *op. cit.,* especially pp. 410–12.

The problem of providing access to a given proportion of the market is illustrated by a company producing stream traps for industrial use. Company management knew that its market was concentrated in the large cities. Since the company had a distributor in each of the large cities, management assumed that the company's market coverage was adequate. An analysis, however, indicated that distributors should be selected according to the industries they served as well as according to geographic area. One distributor in a large city had been selected because he served the mechanical industries, but the paper and chemical industries, each an important market in the same area, were not being served.

The channel system should provide a "feedback" whereby the results of the model, once it is in operation, are explicitly transmitted back to the marketing manager so that he is in a position to evaluate rationally the system's effectiveness. He must know how well the system is operating, such as whether his sales are going into dealer inventories or to the consumer, whether the quality of co-operation from members of the channel is satisfactory, and whether conflicts among the channel members at different levels of the channel are causing tensions.

The need for a "feedback" is suggested by the "Good Friday revolt" of Chrysler Corporation dealers in 1953. On that day "representatives of Dodge dealers throughout the country peremptorily summoned (to a Detroit hotel) the top Chrysler officials. They demanded that the price of cars be cut at once, and that the dealers be permitted to send a representative to the next meeting of the Chrysler board."[14] Chevrolet encountered an identical situation two years later. Also, the General Motors executives could probably have escaped the rather severe drubbing they took at the hands of the congressional committee, mentioned earlier, if a better "feedback" had been in operation. The mechanics of a feedback will be discussed subsequently in connection with evaluating channel performance.

Another principle of model design is to anticipate repercussions between channels—an undue incentive in one portion of the system may lead to dissatisfaction and tensions in another portion. This often occurs if, for example, a manufacturer is using both supermarkets and conventional grocery stores.

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[14] *Business Week,* November 20, 1954, pp. 115–16.

Finally, legal limitations may seriously impair the freedom to choose. As explained in Chapter 9, the Robinson-Patman Act presents significant barriers to freedom of choice because it limits a manufacturer in discriminating among middlemen either on a price or service basis. Brokerage fees are limited. Even though a buyer is relieving the seller of the brokerage function, he cannot be paid a brokerage allowance unless he is a bona fide broker. The Clayton Act limits "exclusive dealing."

The channel system that emerges from applying the principles of channel design suggested previously should be tested with additional information, which constitutes the final stage of fact finding and analysis. As a part of this final stage of analysis, an attempt should be made to forecast the results of the system just short of actually putting it into effect.

After a company management has accepted a channel system in all of its details, the problem of negotiation remains; it must be accepted by the middlemen making up the system. The discussion of the economics of the middleman suggeted that his type of operation does not permit precisely informed judgments and that consequently there is opportunity for astute bargaining. In addition to the lack of information, conditions may vary among middlemen so that a standard arrangement may not be appropriate for all middlemen.

Negotiation is also complicated because the middleman's sales organization, as well as the middleman himself, must accept the plan. Friction in the channel system may develop from the device of a special bonus to the middleman's salesmen from the manufacturer. Although this bonus is effective from the manufacturer's short-term view, it may encounter the ill will of the middleman himself. A manufacturer's bonus can distort the middleman's sales incentive system.

In the negotiating procedure between the manufacturer and the middleman, the manufacturer makes implied, and often explicit, commitments as to the gains for each middleman in the channel network. Lack of fulfillment of the middleman's expectations can be serious, and the commitments are difficult to retract. Therefore it is important that the original estimates of the system's operation be accurate.

SELECTING WAREHOUSE LOCATIONS

The manufacturer's *system of warehouses*—their number, size, and locations—is sometimes a central element in his choice of distribution channels, but here it has been only implicit in the discussion of the channel problem. In fact, establishing a system of warehouses over the country is sometimes an alternative to using a wholesaler. If the manufacturer's own warehouses are not a feasible alternative to the wholesaler, the extent and nature of the network will usually make a difference in which particular middlemen he uses.

The causal relation can run the other direction, however; the nature of the channel system in use can influence the manufacturer's decision as to the number, size, and location of his warehouses. In this latter way of looking at the problem, the spatial location of demand by middlemen is taken as given, and the warehouses are located in an optimal way with respect to this location of demand. If the manufacturer is selling direct to the user as is common in industrial products, this approach of locating warehouses with respect to a given locational pattern of demand is realistic. Further, warehouse size and locations can usually be changed with greater ease than can relations with some middlemen be severed and relations with others developed. For example, warehouses can be leased or rented, but to develop effective relations with good middlemen is a costly, time-consuming process.

In the warehouse location problem the plant location model presented in Chapter 8 can be helpful in setting out the fundamental relations involved. Weight loss is not encountered in warehouse location but analogous kinds of phenomena are. For example, shipments from the factory to the warehouse can be of such magnitude as to receive the carload (c.l.) rate, but shipments out of the warehouse to the customer usually are so small as to lead to the more costly less-than-carload (l.c.l.) rate. It is sometimes possible, however, to combine ("collect," in structure of distribution terminology) in a warehouse shipments for a particular customer from a number of the company's factories and thus receive the lower c.l. rate from the warehouse to the customer.

Also, costs of storage (handling, insurance, etc.) exist and they may differ among particular locations and size of warehouses. Delivery time is a significant factor: the customer likes to receive a shipment as quickly as possible in order to maintain a lower level of inventories and thus reduce his cost. In this way, warehouse location can affect the revenue portion of the profit equation (Revenue — Cost = Profit) since, for example, the buyer favors the supplier that offers faster delivery.

The optimizing rule for the warehouse location decision is: determine the geographical pattern of warehouse locations which will be most profitable to the company by equating the incremental cost of warehouse operation with the transportation cost savings and incremental profits resulting from more rapid delivery. The application of this rule can be complex, in part, because of the great number of possible locations. Also, the incremental profits from faster delivery to the customer are difficult to compute; in fact, many analyses of warehouse location make the unrealistic assumption that sales are unaffected by the location. A way to estimate these profits from faster delivery is to have the executive estimate how much of a penalty in the form of air transportation, for example, that he would be willing to pay rather than not serve the customer. By making simplifications which are not seriously unrealistic, it is often possible to handle the problem mathematically with the aid of the computer.[15]

SELECTING CHANNELS FOR NEW PRODUCTS

The model of buyer behavior from Chapters 3 and 4 suggests something of the nature of the channel problem in marketing a new product. If the buyer is to purchase a brand, he must learn from some source that the product exists, and he must receive the other information that he seeks in Phase 1 of the learning process. The characteristics of the purchasing situation (the state of the exogenous variables) permit considerable variation in the nature of this learning process. If it is an important product, for example, the buyer will want considerable information which must be supplied either by the middleman or the manufacturer via advertising and sales effort. Information should also be available to the buyer *after* his decision to reduce his anxiety, especially if it is a product that is difficult to evaluate post-decision. If, however, it is an unimportant product, the buyer will be less inclined to search, and the task will be to make the product as readily available to him as possible. A nationally known maker of maps and globes, for example, decided to add a toy globe for children to its product line. Traditionally the company had sold its products through stationers, bookstores, and book departments of department stores. Because of consumer purchasing habits—the tendency of customers to search for "toys"—the new product had to be sold through retail outlets that commonly sold toys, which required a radically different system of channels.

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[15] For specific warehouse location studies, see William J. Baumol and Philip Wolfe, "A Warehouse-Location Problem," *Operations Research*, VI (1958), 252–63; and Alfred A. Kuehn and Michael J. Hamburger, "A Heuristic Program for Locating Warehouses," in Ronald Frank, Alfred Kuehn, and William Massy (eds.), *Quantitative Techniques in Marketing Analysis* (Homewood, Ill.: Richard D. Irwin, Inc., 1962), pp. 523–46.

The problem in marketing a new product is to find the combination of middlemen that best meet the characteristics of the new product in terms of how buyers are likely to respond. The goals of coverage, promotion, and cost, discussed earlier, can be useful here if all relevant costs are incorporated, including the cost of "developing" the middlemen, such as the cost of contacting them and negotiating with them.

The seller of a new consumer product contemplates a number of alternatives. Although a wholesaler will probably not aggressively promote the item, the wholesaler does have useful connections with retailers. Also, the wholesaler's margin is relatively low. If the brand owner, usually the manufacturer, can supply the impetus by advertising to the consumer, the wholesaler may be the desirable alternative. A second alternative is to use a specialty shop, which will probably promote the product more aggressively but will demand a higher margin for its services. A third alternative is to sell directly to the retailer. Although direct selling will require a large sales force, the salesmen can be effective in enlisting the retailer's co-operation. For example, the retailer may be persuaded to use point-of-purchase display. A fourth alternative may be to combine missionary salesmen, who will occasionally call on the retailer, with the first alternative (the wholesaler). Although the use of missionary salesmen adds to the cost, it may not be as costly as selling directly. Moreover, missionary salesmen offer some of the advantages of direct selling, such as arranging for point-of-purchase display in the retailer's shop and enlisting his co-operation generally.

As the product becomes accepted, its channel requirements may change. Since heavy promotion is required in the early stages of product acceptance, it may be wise for the manufacturer to provide the middlemen with *temporary* incentives in the form of higher margin and sales aids. The middlemen, who are well aware of this, will attempt to negotiate a favorable long-term commitment. If the manufacturer's forecast of the rate of product acceptance is too low, he will have committed himself to an unduly high distribution cost. On the other hand, an overoptimistic forecast will lead to unfulfilled sales expectations by middlemen and their consequent dissatisfaction. A few beer wholesalers (distributors) were persuaded by the canned-pop producers to add canned pop to their line. Although the distributor margin on beer is typically about 65 cents per case, the distributors were offered only 20 cents per case on pop, with the argument that the sales volume would more than offset this low margin. Experience indicates that beer wholesalers are not an economically feasible outlet for canned pop—they do not attain the necessary volume.

More drastic changes are often necessary as the product becomes accepted. A new product may first be sold through specialty shops, but once accepted, the supermarket type of operation may represent a superior type of outlet. This has been the experience with a widely used brand of toilet soap. The manufacturer's problem in negotiating with the specialty stores is to make as few commitments as possible so that he will be free to make the change to the supermarket once it seems desirable. Furthermore, the manufacturer is required to make the change with a minimum of serious ill will because the development of another new product may force him to call upon the specialty stores again at some later date.

EVALUATING CHANNEL PERFORMANCE

The dynamic nature of the structure of distribution stressed in Chapter 8 requires fairly continuous evaluation of a company's system of channels. The problem of evaluation varies among companies. A company with only one type of middleman as its channel, say a retailer, is faced with a different and often much simpler problem than a company with a number of links in its distributive chain.

The requisite features of any evaluating device are a criterion of performance and a "feedback," which is a flow of information about the middleman's behavior in terms of this criterion. The automobile industry serves as a simple example because there is but one link in the chain, the retail dealer. The criterion of performance is the number of automobiles sold.[16] Ideally, a dealer's contribution to company profit would be used as the criterion. There is also the problem of setting a standard or norm of the criterion—how many automobiles should Dealer A be expected to sell? Prior to the congressional hearings on the relations of General Motors with its dealers, General Motors used national averages in setting dealer norms. The dealers criticized this practice as being inequitable. Later, General Motors agreed to relate the norm to an estimate of the potential in the specific dealer's area.

Where there are a number of links in the distributive chain, another type of feedback may be necessary. The retailers may be willing to render reports, but since the manufacturer may not have direct contact with the retailers, he cannot identify the retailers in order to negotiate for the information. A watch company uses the warranty-card system discussed in Chapter 5. Consumer panels and retail audits discussed in Chapter 4 can be useful, but they are costly.

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[16] Congressional hearings suggest that the criterion was actually more complicated because emphasis was sometimes placed upon selling certain items.

The complex nature of the relations between the agencies making up the channel can require a more extensive kind of feedback than is typically used. Clearly, the feedback was not adequate in the automobile industry, as indicated by the surprise that the automobile-manufacturing executives expressed at the congressional hearings. Attitudinal data expressing the dealer's feelings about the nature of his relations with the company may be necessary.

The dealer-attitude survey can be used to provide this more complex information. The survey is probably useful in detecting latent tensions that may be developing in the distributive system. The A. B. Dick Company's experience illustrates this device.[17] A mail questionnaire, part of which is reproduced in Figure 54, was sent to the dealers to be completed and returned. It covered the following areas: specific relations of the dealer with the company, the administrative services to the dealer, company merchandise, sales promotion, product services, distribution system, pricing policies, credit policies, personal relations with the company representative, administrative ability of the company representative, and the technical competence of the company representative.

FIGURE 54

DEALER ATTITUDE SURVEY

73.	This company's representative seldom makes mistakes in transmitting my orders and requests to the company.	AGREE ☐	? ☐	DISAGREE ☐
74.	I think this company does all that can be expected to help a dealer manage his operation	AGREE ☐	? ☐	DISAGREE ☐
75.	This company has a fair policy on discounts	AGREE ☐	? ☐	DISAGREE ☐
76.	This company's representative is of little help to me in training my sales people when needed.	AGREE ☐	? ☐	DISAGREE ☐
77.	This company's general policy hampers us in making adjustments with our customers.	AGREE ☐	? ☐	DISAGREE ☐
78.	More often than not this company uses the wrong channels in advertising their merchandise.	AGREE ☐	? ☐	DISAGREE ☐
79.	This company fails to do a good job of locating shipping points at strategic places.	AGREE ☐	? ☐	DISAGREE ☐

Source: The Dealer Inventory, Form 755, The Industrial Relations Center, The University of Chicago, p. 4.

Attitudinal information can serve better as a basis for company decision than can sales performance data, because the manufacturer can more easily infer the reasons for the current or future dealer performance from dealer attitudes than he can from such behavioral data as sales and inventory levels alone. The two types of information can best supplement each other, however.

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[17] This grew out of a joint research project between the Industrial Relations Center, The University of Chicago, and the A. B. Dick Company. Grateful acknowledgment for use of the material is made to Robert K. Burns, Director, Industrial Relations Center.

SUMMARY

Marketing channel decisions are important particularly because they involve long-term commitments. Industrial products tend much more toward direct channels than do consumer products. New products often require a change in channels as the new products are accepted in the market.

Qualitative and quantitative criteria for selecting marketing channels when supported by market and cost research can go far in imparting rationality to channel decisions. The long-run optimizing analysis is usually appropriate for this decision.

The manufacturer's network of warehouses is both a consideration in selecting channels and a separate problem for management. Mathematical programming is being used in solving this type of problem.

Change in the structure of distribution has been emphasized because change exists and it brings the need for adjustment. Also, since the change is often imperceptibly slow, the tensions may accumulate to considerable intensity before management is aware that it has a channel problem. An effective feedback is needed to provide data for evaluating performance and to detect the consequences of change as quickly as possible.

Chapter

12

PRICE DECISIONS

THE PURPOSE of this chapter is to develop concepts and methods for measuring these concepts that can be useful to the pricer. Although many of the concepts are taken from economic analysis, to view pricing *solely* as a problem in the economics of price determination is to miss the flavor of the real pricing problem.

Complications in Pricing

Pricing is overlaid with a variety of factors that obscure the essential cost and revenue relations; these factors should be understood and considered in making a rational price decision.

First, pricing has administrative implications. The executive usually hesitates to delegate price decisions to subordinates in the company; yet, many price decisions must be made, the number depending largely upon the number of products a company sells and the complexity of the discount structure in the marketing channel. The magnitude of the pricing task thus often encourages the executive to delegate it. If he does delegate pricing responsibility, he must formulate price-setting rules for subordinates, and a dilemma arises. The subordinate's freedom in setting prices must be limited because prices have legal significance, for example, that the subordinate may not be in a position to evaluate properly; still he must be given adequate freedom to price consistent with changing conditions.

To complicate matters further, in decentralized companies price has become an integral part of management's control system because the level of profit in the decentralized unit is partially determined by the price that must be paid to other elements of the company for products and services. This gives rise to the problem of setting "transfer prices"—a problem which has received increasing attention from management.[1] Another administrative aspect of pricing involves the company's relations with its salesmen. In periods of intense competition, strong pressure is exerted by salesmen to reduce prices; pricing may cause friction which is serious enough to affect salesman morale. One company has gone to considerable expense to develop an allocation of overhead cost, obviously arbitrary, to each product in order to justify to the salesmen the price being charged.

Second, in discussions of the practical pricing problem there usually appears a certain mythology that emphasizes the ethical aspects of competitive relations. The executives in an industry often make strong moral judgments against price-cutting competitors. Of all the marketing decisions, however, pricing is the most strongly conditioned by competitive relations; thus, the pricer must avoid being misled in evaluating how valid these moral judgments actually are in influencing his competitors' pricing behavior.

Third, the law impinges upon some price decisions; this not only complicates the practical pricing problem but also serves to further confuse discussions of the price problem. Obviously, executives will not discuss pricing in a meaningful way if it reveals pratices that, when brought to light, might subject the company to prosecution. For example, a large manufacturer selling nationally would hesitate to discuss his precise method of setting prices if they were, in fact, set by an industry-wide agreement. In addition, illegality carries a stigma. Very probably the heavy moral overtones of pricing can account to a large extent for the myth that prices are consistently determined by cost alone. Often company pricers will say that they set prices based on costs, but when cross-examined they will agree that demand considerations enter into the decision.

Finally, there are a number of practices which are closely related to price decisions but which result in ambiguous instead of clear-cut price changes. "Promotional" pricing is an example. It is a term applied to the use of "deals," "premiums," and "coupons." A retailer may be given a "special deal" of five cartons for the usual price of four. A consumer is given a "premium"—a drinking glass—if she buys a box of soap. Retail stores give "coupons" to customers according to the size of their purchase. These coupons can be redeemed in goods. Changing the value of the "trade-in" has long been common in the retail automobile market and was used in the electric shaver market in February, 1956, to reduce the price of shavers by almost one half.[2] In the steel industry, charges for "extras" are varied. When demand is high, steel manufacturers may require steel buyers to accept "extra" processed steel even though the buyers do not want the further processing. When demand declines, as occurred in late 1953, this may no longer be required by the steel companies.[3] The executive's desire to simplify the administrative task of changing prices and to maintain stable competitive relations probably account for most of these practices, which are alternatives to an outright price change.

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[1] Jack Hirshleifer, "On the Economics of Transfer Pricing," *Journal of Business,* XXIX (1956), 172–84; Paul W. Cook, Jr., "Decentralization and the Transfer-Price Problem,"*Journal of Business,* XXVIII (1955), 87–94; and Joel Dean, "Decentralization and Intracompany Pricing," *Harvard Business Review,* XXXIII, No. 4 (1955), 65–74.

In this chapter an attempt will be made to take a middle course in the study of price: the analytic relations involved in pricing, which are set out in purest form by economic analysis, but which are the major complications typically encountered, will be incorporated, mainly by using the model of buyer behavior. Analysis is essential to cutting through the folklore of pricing practice.

Frequency of Price Decisions

Management has often recognized the necessity to make a price decision only under one of two conditions: (1) rising costs or (2) the introduction of a new product. Otherwise the decision has often been made largely by default: "Let well enough alone." Long-term profit considerations dictate fewer changes than short-term considerations, but in a dynamic economy where demand, costs, and competitive relations at all levels of the distributive structure are subject to almost continuous change, this passive approach to pricing may result in profits being sacrificed. The passivity has probably been caused primarily by the inadequacy of the measuring tools used for making a rational price decision. The tendency has been further aggravated by the spotlight of unfavorable publicity illustrated by a headline in one of the business periodicals: "NEWSPRINT: A RISE IN PRICE—AND CONGRESS ASKS WHY."

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[2] *Advertising Age,* April 16, 1956, pp. 2 ff.

[3] *Chicago Daily News,* December 16, 1953, p. 59.

DIMENSIONS OF THE PRICING PROBLEM

On the surface, price seems to be the most definite of the competitive tools since it is always expressed in dollars, but a closer examination will remove this illusion:

> A price of, say, iron ore becomes not merely $4.60 a ton but $4.60 per gross long ton of 2,240 pounds of Mesaba Bessemer ore containing exactly 51.5 per cent of iron and 0.045 per cent of phosphorous, with specified premiums for ore with a higher iron content or a lower phosphorous content and with specified discounts for ore with a lower iron content or a higher phosphorous content; samples to be drawn and analyzed on a dry basis by a specified chemist at Cleveland, the cost being divided equally between seller and buyer; 48,000 tons to be delivered at the rate of approximately 8,000 tons per month during April–September, inclusive, on board freight cars of the New York Central Railroad at Cleveland, Ohio; the purchaser to pay all charges involved in moving ore from the rail of the lake steamer to the freight car and other port charges, such as unloading, dockage, storage, reloading, switching and handling; ore to be weighed on railroad scale weights at Cleveland; payment to be made in legal tender or bank checks of the buyer to the Cleveland agent of the mining company on the 15th of each month for all ore received during the preceding month.[4]

Although this example of the many dimensions of price is not intended to suggest that all pricing situations are as complicated, many pricing situations actually are this complicated. In order to put meaning into a discussion of a problem that is laden with management folklore and involves a bewildering array of details, the discussion will be broken into three parts: single-product pricing, product-line pricing, and price differentials.

Single-product pricing has to do with situations where the complications interposed by multiproducts can be ignored. Some companies have only one product, which makes the single-product pricing analysis directly applicable to the specific problems. Since few companies, however, sell only one product, the importance of the concept lies mainly in providing a method by which the analyses appropriate to both product-line pricing and setting price differentials can be developed without becoming bogged down in the details.

Product-line pricing is concerned with setting prices in a multiproduct company with a view to the price interrelationships among the company's various products.

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[4] Reavis Cox, "Non-Price Competition and the Measurement of Prices," *Journal of Marketing*, X (1945–46), 376.

Setting price differentials deals with differences among buyers according to their trade status, the amount of purchase, location, promptness of payment, time of purchase, and personal situation such as differences in the requirements for certain product qualities.

SINGLE-PRODUCT PRICING

To provide perspective it may be helpful to *ask:* How would an executive in a multiproduct company systematically go about setting prices originally, or reviewing existing prices?[5] He would probably analyze his entire line of products and select certain *typical* products which taken together would be representative of the entire line. Then, he would subject each typical product *separately* to the following analysis. Beginning with Product A, for example, he would ask himself: If I change my price to Price X and my competitors *do not follow,* what will be the effect on my sales? If I change to Price X and my competitors *follow part way,* what will be the effect on my sales? If I change to Price X and they *follow all the way,* what will be the effect on my sales? The executive would ask himself the same questions about Prices Y and Z as well. To help provide the answers to his questions, he could go through the analysis and then use market research to provide a more substantial base of information as suggested in the section "Pricing Tools" that follows.

Having answered these questions, the executive would then ask himself: What will be the profit contribution of Prices X, Y, and Z if the *most likely* of these possibilities about competitive behavior occurs? He could use the analytic method of pricing presented below in answering this question and thereby in deciding which of the three prices is best.

After selecting the best price, the executive would ask himself: Should other elements of the marketing plan for Product A—product, channels, advertising, and selling—be modified? Finally, he would ask: Is this price legal?

After completing his analysis of Product A viewed in isolation, the executive would then proceed with the same analysis to set the prices on those nontypical products in the line that are *most closely related* to Product A. From the process of setting the price of each typical product, he would probably distill a rule for setting the prices of the related products. For example, if it turned out that the price of Product A happened to be the direct cost of Product A plus 40 per cent, he would then apply the rule, "direct cost plus 40 per cent," to each of the related products. In the process of doing this he might find that because of the interrelations of the related products with A, perhaps A's new price should be adjusted a little. Finally, after having thoroughly analyzed A and its related products, the executive would proceed to subject typical Products B, C, D, etc., to the same analysis.

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[5] For a thoughtful, more concrete analysis, see Alfred R. Oxenfeldt, "Multi-Stage Approach to Pricing," *Harvard Business Review,* XXXVIII, No. 4, (1960), 125–33.

With this perspective on procedure, let us examine in detail the tools and methods of pricing.

Pricing Tools

Price can be used to increase company sales in either or both of two ways: (1) taking sales from competitors or (2) expanding industry sales. The first method immediately leads us into important questions of competitive behavior.

Competitive Behavior. In Chapter 6 it was stated that a company selling in the typical American market can be characterized as an oligopoly. This means that competitive interdependence exists—any price move on the company's part may elicit some move from its rivals. Two extremes can be represented by a raw-steel manufacturing company and a municipal transportation company. Figure 55 presents diagrammatically these two situations as well as an intermediate situation where some independent price discretion exists.

In the raw-steel market, which typifies Market 1, there are only a few competitors. They are selling a product that is almost identical among competitors and a product that is sold to well-informed buyers. Typically, competitors in this "undifferentiated oligopoly" react almost instantaneously to downward price changes, and without great delay to upward price changes. In the municipal-transportation market, which typifies Market 3, no immediate competitors exist; the possibility of a competitor's price reaction can be ignored, but a price increase will turn riders to other sources of transportation or cause them to travel less frequently. When the New York Transit Authority raised its fare from 10 to 15 cents in July, 1953,[6] there was approximately a 10 per cent decrease in the number of riders during the first week as compared to the previous year.

Market 2 represents a situation where Company A, such as the California Packing Company, has some independent price discretion.

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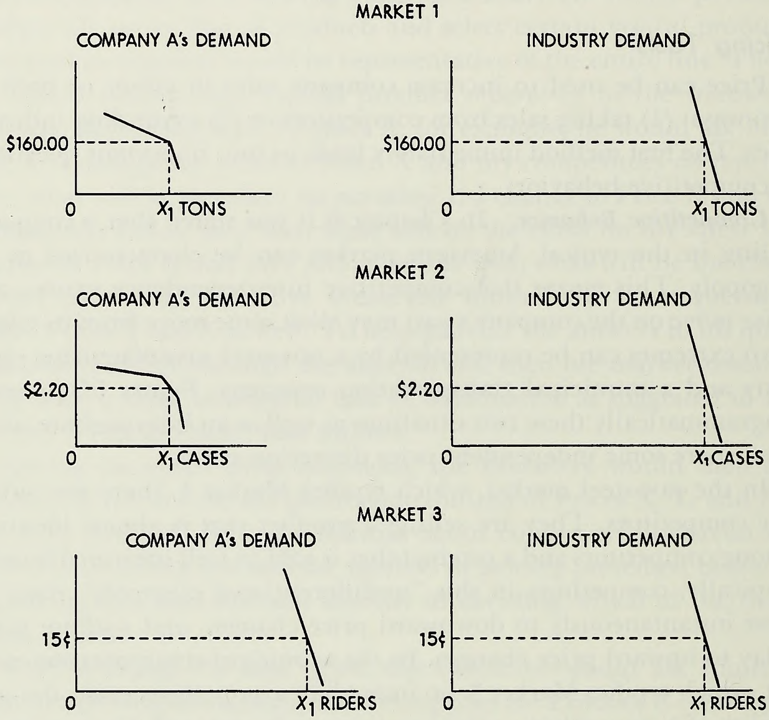
[6] *New York Times,* August 22, 1953, p. 14.

This market is a "differentiated oligopoly." California Packing can reduce the price of a case of No. 6 Del Monte peaches as little as, say, 20 cents per case, and decrease the market shares of rivals without eliciting an immediate price change from them. Alternatively, price can be raised as much as 20 cents per case without losing to competitors because in the eyes of the buyer none of Company A's rivals have a product that is quite identical with the product of Company A. Above a certain price, such as $2.40 per case, however, Company A will immediately lose sales to competitors—retailers are unwilling to pay more because the consumer will turn to competitors' brands if Del Monte is more than 4 cents per can higher. The industry price in this instance is, of course, an average of the different company prices.

FIGURE 55
Competitive Influences on Pricing



The "kinked-demand curve" describes Markets 1 and 2 as shown in Figure 55. In Market 1, Company A's competitors will follow Company A downward when it changes its price, but they will not follow its upward price changes. In Market 2, however, Company A has *some* leeway in changing prices: Its competitors respond to downward price changes only when a certain minimum price, about $2.00, is reached. Although the concept of the kinked-demand curve is helpful in graphically portraying these situations, it helps only to explain why prices *do not change* (Market 1) or why they change only within certain limits (Market 2). It does not explain why prices *do change,* which is the more important problem.[7]

Typically, markets can be arranged on a continuum of interdependence of which Markets 1 and 3 make up the extremes. Companies probably tend to be bunched around Market 2 with a much greater number bunched toward the extreme of Market 1 than Market 3. The company that markets a new product in an industry is temporarily at least in a situation resembling Market 3, but as competitors follow its innovation, the market will become more like 1 or 2. There is a fourth category of markets, termed "monopolistic competition," in which there are many competitors, but each company has some pricing discretion as a result of product differences or spatial location. A company selling in such a market, however, is faced with a demand condition similar to that shown graphically by Market 3 in Figure 55. The pricing problems are similar enough to justify including this company in the Market 3 category for discussion purposes. Still another category is "pure competition," which describes a situation of many competitors selling an identical product. In some instances it is approximated by the "competitive fringe" made up of small companies that surround a few large companies. Under the extreme of these conditions, none of the participating small companies have significant pricing discretion; they are unwise to charge less than the price set by the large companies because they can sell their entire output at this price, and if they charge more they will sell nothing. Therefore, they have no price decision to make. With this as a background, let us examine the working of an oligopoly market in greater detail.

In Chapter 6, five patterns of competitive behavior in an oligopoly market were described. Although the price-leadership variety is the most common, effective collusion, limited collusion, and chaotic competition may occur. Perfect collusion is most unlikely. The determinants of competitive behavior will be reviewed because an explanation of why the different patterns occur will provide a guide to the company pricer in deciding how his price decisions may affect the behavior pattern in his industry.

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[7] For the limitations of the "kinked-demand" model in describing competitive behavior empirically, see George J. Stigler, "The Kinky Oligopoly Demand Curve and Rigid Prices," *Journal of Political Economy,* LV (1947), 432–49.

The problem facing a pricer in an oligopoly market is how to attain the necessary changes in price without causing market behavior to degenerate into chaotic competition. Price leadership is one device by which such changes can be made. In Chapter 6 it was shown that price leadership can be of two types: dominant firm and barometric. From time to time the role of price leader, often termed the "bellwether" of an industry, may change and be assumed by different companies. The Cleveland-Cliffs Iron Company, for example, had been the leader in setting iron ore prices for 15 years, but recently the Oliver Iron Mining Division of U.S. Steel took the lead by announcing an increase of 20 cents per ton. The reason for the shift in price leadership, it has been said, is that in the past Cleveland-Cliffs was the only major ore producer selling to the general market. Other ore producers were "captive" and sold only to their owner-companies; therefore, Cleveland-Cliffs was considered to be in a better position to evaluate the ore market. Recently, however, U.S. Steel added to its ore capacity, particularly in Venezuela. Since U.S. Steel has considerably more ore than it can use, the Oliver Iron Mining Division is searching for buyers; therefore, the Oliver Iron Mining Division is taking a more active pricing role.

The identifying characteristic of a "bellwether" is its ability to lead upward—any major company can "lead" downward in the sense that competitors are forced to follow because they are afraid of losing customers. Leadership attempts may fail. In May, 1956, Liggett & Myers increased their price by 45 cents per 1,000 cigarettes. Competitors failed to follow, and within a week Liggett & Myers canceled its increase.[8]

This classification of competitive behavior patterns is not intended to imply that if there is no collusion or effective price leadership, a price change by one company must necessarily result in chaotic competition. Particularly in periods of expanding demand and where intercompany product differences exist, changes in industry price levels occur without chaotic competition developing and without significant price leadership.

The typical determinants of competitive behavior are number and size-distribution of companies, product differences, industry demand, size and kind of buyers, marketing channels, cost conditions, spatial aspects of the market, law, number of products, and the internal organization of the company. In Chapter 6 these determinants were discussed briefly, and in other chapters they have been elaborated upon, although their competitive implications sometimes have not been made explicit. For example, the earlier discussion of demand analysis has thrown light on how demand changes, and particularly how the influence of changes in national income varies among products. Long-term changes in demand were dealt with in Chapter 5. Chapter 7 discussed the complexities of cost and the possible differences of opinion among competitors as to whether cost has increased enough to risk a price increase. The concepts of demand location and structure of distribution developed in Chapter 8 as well as Chapter 11 indicate that intercompany differences in marketing channels may exist. It was suggested in Chapter 9 that the general significance of the legal framework is to prevent "effective collusion," particularly among the larger companies. The idea of conscious product change developed in Chapter 10 implies that significant intercompany product differences may exist.

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[8] *Business Week,* May 26, 1956, p. 58.

Finally, the role of the internal organization of the company in influencing competitive behavior is illustrated by a mail-order house. In 1951 this company formulated a "low-price" strategy mainly on the theory that the internal organization of its two large competitors would prevent them from following this price procedure. These two competitors owned retail stores, and it was felt that they had to maintain a certain relationship between the mail-order price for a product and the price for the same product in the company-owned retail store.

Since a company must set its prices with the future consequences in mind, it should also examine *potential* competition. The following conditions have been suggested as significant in the consideration of potential competition.[9]

1. How easy and cheap it is to get into the business, that is, the height and importance of barriers to entry.
2. How much potential competitors know about the profitability of the present producers of the product.
3. Whether the development of product acceptance is approaching the state when the "specialty" is maturing into a "commodity."
4. Whether the other aspects of merchandising competition make the producer an easy mark for an invasion.
5. Whether the buyers are large, highly concentrated, and technically well informed.

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[9] Joel Dean, "Pricing Policies," in Wyman P. Fiske and S. A. Beckett (eds.), *Industrial Accountant's Handbook* (New York: Prentice-Hall, Inc., 1954), p. 608.

Demand. The two general problems of demand analysis for pricing purposes are (1) the appropriate demand concept, and (2) how to measure this demand concept.

As is true for any price decision, it is the future demand that is relevant; the exact period in the future to be considered depends upon the length of time for which the decision commits resources. Although we think of price changes as involving short-term commitments, some price changes can precipitate changes in the basic structure of the industry.

The two demand concepts, market and company, and the corresponding price-sales relations must be distinguished. Although a company is directly concerned with company demand, consideration of market demand is necessary. First, the magnitude of the elasticity of market demand determines what the sales volume for the industry will be when price is changed, and thus the market demand has direct effects upon the company's own sales volume. Second, as the previous section on competitive behavior indicates, the nature of the market demand—its elasticity, stability, etc.—strongly determines the kind of competitive relations that will exist in the industry and that will influence the executive's views of pricing in most industries. Thus, the concept of the company price-sales relation is meaningful in most situations only if some assumption is made about how competitors will react to the price changes under consideration.

Let us first examine the nature of *market* demand. What are the generalizations about factors that determine the elasticity of demand for a product? These generalizations are essential in guiding the use of market research and in interpreting its results. As indications of elasticity of market demand, deductive economic reasoning has suggested the following characteristics for consumer products and industrial products: (1) The characteristics for consumer products are whether a product is a "luxury" or a "necessity"; whether or not substitutes are readily available; importance of the product in buyer's expenditure; the level of the seller in the structure of distribution; and the extent to which the product can be stored. (2) The characteristics for industrial products are whether the product is used in further production rather than consumed; the elasticity of the price-sales relation of the end product; and the importance of the product in the manufacture of the end product.[10] A survey of a number of industry elasticity studies, mainly of agricultural products, suggests some evidence about the empirical validity of these theoretical ideas.[11] Products with good substitutes tended to have high elasticities. The nearer the product was to the consumer level in the marketing channel, the higher was the elasticity. Product storability, however, was not associated with either high or low elasticity. Few industrial products had lower elasticities than farm products. The product elasticities also changed over short periods of time.

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[10] W. Z. Hirsch, "A Survey of Price Elasticities," *Review of Economic Studies,* XIX (1951–52), 51.

With respect to market demand, the business cycle has a number of implications for pricing. One aspect of the business cycle is the buyers' price expectations—how buyers expect prices to change in the future and how this will influence their current responses. It is clear that anticipation of price increases will cause some industrial buyers to increase their current purchases. There is evidence from the consumer surveys conducted for the Federal Reserve System that consumer-buyers are not influenced significantly by price expectations, but later evidence suggests that price expectations do make a difference.[12] The magnitude of the anticipated price change is important, however, and not all consumers behave alike. Buyer expectations about prices are important for the pricer; he may be deterred from changing price because he fears, for example, that a price cut may lead to expectations of a further cut, which will cause consumers to delay purchases.

Finally, it is often argued that the business cycle affects the elasticity of market demand for many products. Some argue that the relationship is direct; others argue that it is inverse.[13]

Let us now examine the concept of company demand elasticity and its measurement. To this point in the discussion of elasticity, economic analysis has been used, but when we turn to company demand, the model of buyer behavior becomes useful in elaborating upon the economic view. The model can account for buying behavior which is sometimes superficially labeled "irrational." For example, it contributes to a greater understanding of the temporal feature of demand. When sales increase as a result of a lowered price, the additional sales result from increased use of the brand by existing users (those who buy from you or from your competitors) or from new buyers. The existing users must become *aware* of the new price. The buyer does not *automatically* notice all new stimuli—he may not come into contact with the new stimuli and even if he does, perceptual bias operates. Company market research studies have shown the great difference in buyer response between a price cut that is made without being advertised and one that is advertised. This tendency for the level of advertising to affect the price-sales relations incidently illustrates the situation where two sales relations—price and advertising—are interdependent. A price change in an important product would more likely be observed than would the price of a less important item. Also, if the product is subject to periods of price instability, buyers learn to be "price conscious"; this is observed in the price wars that characterize the gasoline market at the consumer level. "Small" price changes may not be discriminable, and the buyer may generalize his buying response to the new price without being aware of the change. Finally, the buyer behavior model predicts that more attention will be made to product cues, one of which is price, by buyers in Limited Problem Solving than in Extensive Problem Solving. Buyers in Automatic Response Behavior presumably are least sensitive to price changes.

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[11] *Ibid.*, pp. 50–60.

[12] Eva Mueller, "Consumer Reactions to Inflation," *Quarterly Journal of Economics*, LXXIII (1959), 246–62.

[13] See Richard B. Heflebower, "The Effect of Dynamic Forces on the Elasticity of Revenue Curves," *Quarterly Journal of Economics*, LV (1940–41), 652–66.

If the sales increase comes from sales to new buyers of the product, these buyers will undergo a learning process and time is required for adjustment. For example, if the new product is a food which requires new cooking procedures, consumers must change their habits. A study of meat prices suggested that the short-term price elasticity of pork was —1.0 but the long-term elasticity was —1.5.[14] It was estimated, however, that the market demand for fresh California plums had an elasticity of —9.05 on the second week of the season, which dwindled to —0.65 by the tenth week, and rose again to —4.84 on the sixteenth week.[15] Thus, something more than a learning process was involved here. In industrial products, an investment in new equipment, for example, may be necessary to take advantage of a price decline, and so response to a price change will be delayed.

While discussing the temporal dimension of price changes, it is pertinent to ask which of the optimizing models—the short-run or the long-run—is appropriate for the pricing decision. Usually it is thought of as a short-run decision, but it is conceivable that effects are so long-run that the long-run decision model is appropriate. Recently, for example, a company selling welding rods debated whether or not to reduce its prices. The executives felt that a major price cut could change the basic structure of the industry by eliminating a number of marginal producers. This profound change would favorably affect profits for several years to come. The company decided to reduce its prices.

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[14] Elmer J. Working, *Demand for Meat* (Chicago: The University of Chicago Press, 1954), p. 79.

[15] Hirsch, *op. cit.*, pp. 56–58.

"Psychological" pricing is an important phenomenon which refers to the practice of charging, for example, $1.29 for an item in the belief that buyers will respond *much* more favorably than to $1.30. If buyers do respond in the way this practice implies, the price-sales relation when described in a graph is a stair-step function. As casual observation will indicate, psychological pricing dominates much pricing practice particularly among consumer products but also among industrial products. One explanation is that a buyer must justify to himself and others the expenditure of money for a purchase. The price of $9.99 enables him to say that he spent $9.00 instead of $10.00 for the product. Housewives in particular may be faced with this problem. Some psychologists suggest that there are two kinds of personalities: (1) those who make their decisions based upon internal criteria, and (2) those who depend more upon influences from the environment, and specifically, upon influences from other people. If so, then the latter type of personality would perhaps be more susceptible to "psychological" pricing because such people feel that they must justify their decisions to their friends.[16]

Finally, the "price-quality" association is a phenomenon that is widely believed to exist by marketing executives. The price-quality association is the tendency for the buyer to impute quality to a brand according to the level of its price in relation to competitors' prices; if the price is higher than competitors' prices, the buyer thinks it is necessarily a better product. This phenomenon is sometimes incorrectly described by a backward sloping demand curve. In a *ceteris paribus* demand curve which is typically used (see Chapter 4), the price-quality association cannot be shown because "quality of the product" changes too when the price is changed. It appears to underlie some of the unwillingness of company pricers to reduce the prices of consumer goods.[17] According to the Zenith Radio Corporation it was faced with this problem in selling its hearing aid. The company "is finding it hard to convince the public that its $75 hearing aid is as good as others selling for much more."[18] This phenomenon is not confined to consumer buyers. In investigating the dental equipment manufacturing industry, a British Royal Commission found a tendency among dentists to identify price cutting with the sale of inferior goods. Price is but one product cue; however, if the buyer has not had enough experience to evaluate the brand or if the brand is difficult to evaluate even *after* the buying decision, price may be one of the few distinctive cues available. Also, a buyer learns from experience that *on the average* among all the products that he buys, price and quality are probably positively related. Heavy time pressure probably increases perceptual bias which could lead to the price-quality association. In addition, some products have social status implications, and these may be subject to the "price-quality" association—the higher the price, the higher the status value.

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[16] Riesman has popularized these personality types with the terms "inner-directed" and "other-directed" in David Riesman *et al., The Lonely Crowd* (abridged ed.; Garden City, N.Y.: Doubleday & Co., Inc., 1953).

[17] For an attempt to test experimentally for the price-quality association, see Harold J. Leavitt, "A Note on Some Experimental Findings about the Meanings of Price," *Journal of Business,* XXVII (1954), 205–10.

With these general conceptions about elasticity as a background, let us turn to methods of measuring elasticity. There are at least three methods of estimating the effect of price upon sales: the experimental method, buyer interviewing, and the analysis of time series data. The first two methods can be referred to as *crosscut* methods; that is, they are made approximately as of a point in time. The third method uses *historical* data.

The experimental method has potentialities for measuring the effects of a price change among many consumer goods. The essential idea is that two comparable markets (the "control" market and the "experimental" market) are selected, price is changed in one of these markets, and then the sales in the two markets are compared after a period of time. The purpose of using two markets is to control, or limit, the effect of influences other than price upon sales. Actually, a number of control and experimental markets may be necessary to yield statistical reliability. Also, in order to obtain the appropriate sales information, the sales in these segments of the total market must be isolated from the rest of the market for the observation period, which is often accomplished by a consumer panel or retail audit.

Two examples of the experimental method are presented to suggest more concretely the procedure involved. The first example consists of two price experiments carried out by a frozen-food packer; the results are shown in Figure 56. The price of a frozen food was cut by two cents for a period of four weeks, and then returned to its former level. The effect on sales was measured by a consumer panel. After another month a three-cent cut was maintained for two weeks. It was concluded that the larger cut was more effective; moreover, it was concluded that its effect was not so much in increasing the number of buyers as it was in adding to the volume purchased by existing buyers.

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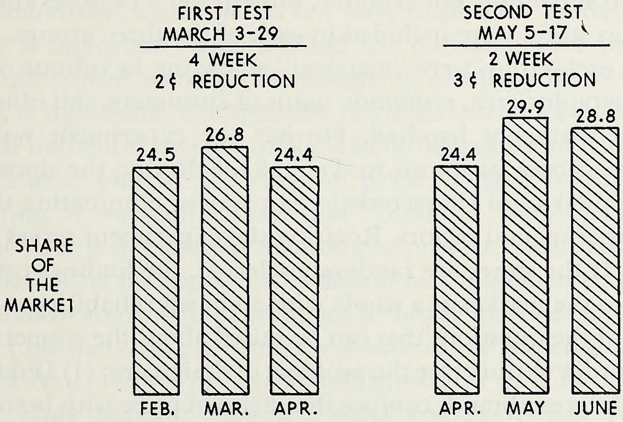
[18] *New York Times,* May 20, 1952, p. 41.

The conclusion arrived at in this experiment includes the unwarranted assumption that all of the changes in sales were a result of the price changes. Apparently no attempt was made to compare the sales in the experimental area with the sales in a control area. Another deficiency, for example, could be that the period of time was too short for some of the major consequences of the price cut to work out—perhaps the company was merely borrowing sales from the future.

FIGURE 56

TESTING NEW PRICES



Source: Larkin Osborn, "Market Analysis, a Tool for Developing Business and Controlling Distribution Costs," *Proceedings of the Third Conference on Controllership* (Chicago: The University of Chicago, 1954), p. 24.

In the second example, a cosmetic manufacturer was ready to introduce a new product in 1952 and had yet to decide on the price.[19] A limited budget required that the experiment be relatively inexpensive. The co-operation of 15 chain stores (three groups of five each) was obtained, and the experiment was divided into three periods between November 12, 1951, and January 7, 1952. Brand name was the only difference between Cosmetics X and Z, the physical product being identical. The experiment was as indicated in Table 23.

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[19] Company security requirements prevent disclosure of more details. Grateful acknowledgment for the information is made to Market Facts, Inc.

TABLE 23

EXPERIMENTAL METHOD IN PRICING COSMETICS

	Group A Stores	Group B Stores	Group C Stores
Period No. 1 (Nov. 12–26).......	Brand X — 49¢	Brand Z — 59¢	Brand Z — 69¢
Period No. 2 (Nov. 26–Dec. 3)...	Brand Z — 59¢	Brand Z — 69¢	Brand X — 49¢
Period No. 3 (Dec. 3–Jan. 7).....	Brand Z — 69¢	Brand X — 49¢	Brand Z — 59¢

Cosmetic X at 49 cents obtained 18 per cent of the market of all brands sold in the stores. Cosmetic Z at 59 cents and 69 cents obtained only 12.2 per cent and 11.1 per cent, respectively. Store sales records were used as the source of information on sales for the observation period.

In the cosmetic example, the experiment was designed to remove some of the nonprice effects on sales by having each of the three groups of stores comparable. For example, three Jewel Tea stores and two National Tea stores were included in each of the three groups. Also, the stores in each group were "matched" according to volume of toiletry sales, geographic area, economic status of customers, and other brands of cream shampoos handled. Further the experiment was rotated among the stores, as shown in Table 23. Selecting the stores so as to obtain similarity in characteristics is a way of eliminating the effects of nonexperimental factors. Rotating the experiment serves the same purpose. If the stores are randomly selected, the findings can be generalized to the market as a whole with a known reliability.

Some of the questions that can be raised about the cosmetic experiment in order to illustrate the problem of design are: (1) Did the use of the two different brands confuse the effects of price with brand effects? (2) Was there a cumulative effect of price so that the different lengths of the experimental period would affect the results? (3) Did the price policies of the kind of stores used in the experiment prevent the findings from being generalized to the company's other retail outlets? (4) Did the order in which the different prices appeared affect the results? (5) Did the experiment draw from other stores?

The second type of method, buyer interviews, consists of inferring from buyers' statements what their reactions would be to price changes. Although this method is subject to limitations, it may be useful in providing supplementary information for a price decision. For example, interviews revealed that most buyers of a branded baby food chose it on their doctor's recommendation, and that most were quite ignorant about substitutes and about prices. This knowledge, together with other information, led the manufacturer to guess that demand for his product was quite inelastic.[20]

It is possible to use a version of the buyer interview method in industrial goods by first compiling engineering estimates of the cost savings that a buyer can expect from the product. Then, through buyer interviews, the responses of buyers to different prices can be evaluated once the probable cost savings for each respondent have been explained.

The third method, time series analysis, has received the most attention. This method takes price and sales data at different points in time, and the price-sales relationship is determined by the "least-squares" principle which is commonly used in statistical regression analysis.[21] The published studies employing this method have been concerned with the market concept rather than the company concept of demand.[22] Furthermore, most of the studies have been confined to basic commodities, while only a few have dealt with products where branding is important. This method has limitations for price decisions in the typical situation of measuring company demand where branding is significant. Competitive relations introduce a number of additional influences that are difficult to incorporate and which are so numerous as to obscure the effect of price changes. In Chapter 10, for example, it was emphasized that "product" itself changes over time. The time series analysis method can provide useful background for the marketing manager, but it should be supplemented by either the methods of controlled experiment or buyer interviews.

Cost. Cost increases are often the source of the impetus for a price change. A *New York Times* headline illustrates this: SHOE MAKERS EYE THE HIDE MARKET—SPRING PRICES FOR FOOTWEAR HINGE ON HOW LEATHER QUOTATIONS MOVE." A more fundamental aspect of cost for pricing is that if a price change is effective, the rate of sale will be influenced and, probably, the rate of production as well. The cost information needed, then, is the relation between the rate of production and cost, which is the marginal cost of economic theory. It may be possible to use the average variable cost of production as an approximation, depending largely upon the magnitude of the change in the rate of production brought about by the price change. This approximation, which was discussed in Chapter 7, is not recommended when large changes in production are involved.

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[20] Joel Dean, *Managerial Economics* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1951), p. 184.

[21] For a statement of the use of "least-squares" analysis in determining price-sales relationships, see Richard Stone, *The Measurement of Consumers' Expenditure and Behaviour in the United Kingdom, 1920–1938* (Cambridge, England: Cambridge University Press, 1954), Vol. 1.

[22] See Hirsch, *op. cit.*, pp. 59–60, for a lengthy bibliography of price studies made by the least-squares method.

Legal Considerations. The law pertaining to collusion and share of market is a relevant legal consideration in thinking about the price of a single product. Prices must not be set by formal agreement among competitors. An excessive market share may be questioned by the antitrust agencies.

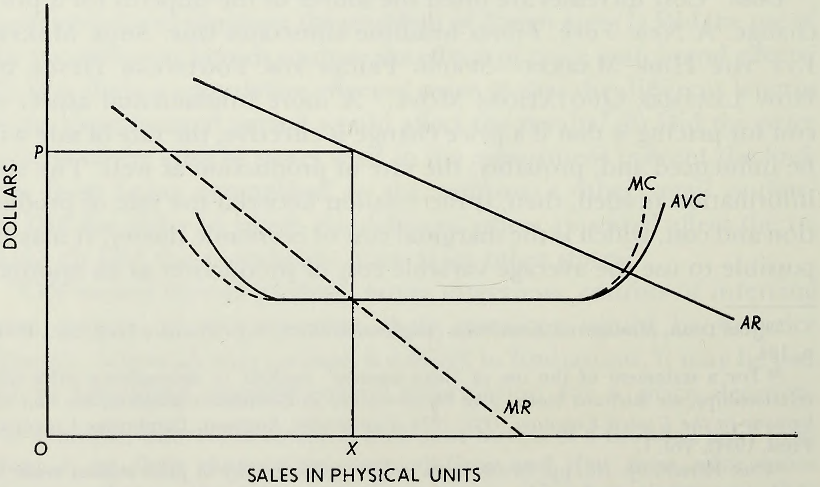
Methods of Pricing

Two quite different methods of setting price will be discussed: the analytic and the full-cost method. The adequacy of other pricing methods not discussed here can be evaluated by comparing them with these two methods.

Analytic Method of Pricing. A review of the various considerations and, preferably, quantitative estimates of the relevant considerations constitutes the first step for a price decision. The analytic pricing method is merely an application of the short-run optimizing model discussed in Chapter 7, except that some attention is given to such long-run considerations as potential competition. If the pricer accepts a "stay-out" price as the upper limit, he may be accomplishing this goal to a large extent. A "stay-out" price is set below the price that will

FIGURE 57

Optimum Price with Average Relationships

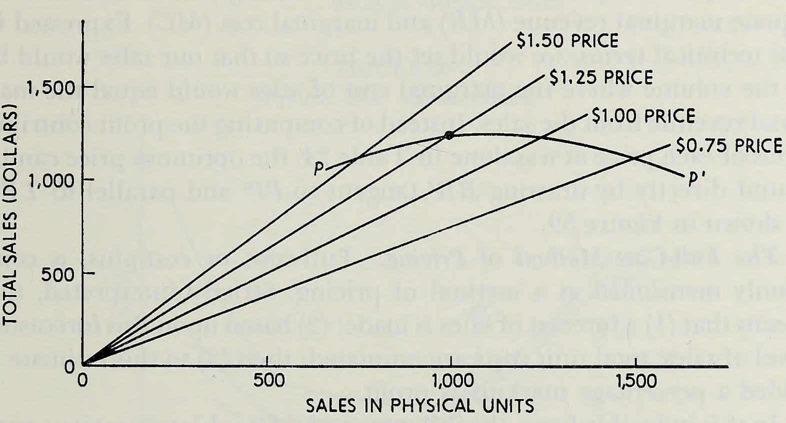


encourage potential competitors to enter the market. The lower limit is set by marginal cost since a company is better off to drop a product than to keep a product which will not contribute to overhead. The correct level will be that price which results in a volume of sales at which marginal revenue is equal to marginal cost. Figure 57 illustrates this with the demand situation of Market 3 shown previously in Figure 55. *P* is the ideal price. Although the analytic pricing method is seldom precisely attainable in fact, the theory serves as a useful guide.

In order to acquire more familiarity with the optimizing tools, let us assume that we have maintained a price of $1.00 per unit in the past but we feel that perhaps $0.75, $1.25, or even $1.50 might be a more profitable price. In order to verify this, we select twelve local markets, and in three of them we leave the price at $1.00, in three we lower the price to $0.75, in three we raise it to $1.25, and in three we raise it to $1.50. At the end of a month we compare sales in the four groups of markets and find that the average increase in sales (physical units) in the cheapest markets was 20 per cent and the average decline in the higher-price markets was 20 per cent and 40 per cent, respectively. The results are shown in Figure 58. The slanted lines in Figure 58 represent the total revenues at different prices. The line *PP′* is drawn through the points representing the volumes of sales at each of the different prices as suggested by the price experiment.

FIGURE 58

PRICE–SALES RELATIONSHIP



If the average variable cost was $0.25, the unit price of $1.25 would yield a contribution to profit of $1,000 per month as compared with

TABLE 24

PRICE, VOLUME, AND PROFIT RELATIONSHIPS

Price	Sales in Units	Sales in Dollars	Variable Cost	Contribution to Profit
$0.75	1500	$1,125	$375.00	$ 750.00
1.00	1250	1,250	312.50	937.50
1.25	1000	1,250	250.00	1,000.00
1.50	750	1,125	187.50	937.50

$937.50 at the unit price of $1.00 or $1.50, and $750 at the unit price of $0.75. The contribution to profit of each price is computed in Table 24.

Ideally, however, we would experiment with a larger number of prices, enough to trace out *PP′* in Figures 58 and 59, and then we would be in position to set the best price—the "optimum price." To set an optimum price, the short-run optimizing rule directs that we equate marginal revenue (*MR*) and marginal cost (*MC*). Expressed in less technical terms, we would set the price so that our sales would be at the volume where the marginal cost of sales would equal the marginal revenue from the sales. Instead of computing the profit contributions of each price as was done in Table 24, the optimum price can be found directly by drawing *RR′* tangent to *PP′* and parallel to *TVC* as shown in Figure 59.

The Full-Cost Method of Pricing. Full-cost, or cost-plus, is commonly mentioned as a method of pricing. Strictly interpreted, this means that (1) a forecast of sales is made; (2) based upon this forecasted level of sales, total unit costs are estimated; then (3) to this estimate is added a percentage markup as profit.

In this inflexible form, the full-cost method is subject to serious criticism: it neglects the influence of competition and demand; it is based upon full cost rather than the appropriate marginal cost; and it involves circular reasoning because price, which influences sales, depends upon full cost, which in turn is partly determined by the level of sales. Figure 60 illustrates typical cost relationships where average variable cost is constant over a significant range. (Remember that when *AVC* is constant it is identical to *MC*.) In Figure 60, for example, *ATC*, or full cost as it is often called, is different for each level of sales.

The dangers of full-cost pricing are illustrated by a Midwestern manufacturer of cutting tools. One of the company's lines of products became quite unprofitable. An investigation revealed that prices in

FIGURE 59

Optimum Price with Total Relationships

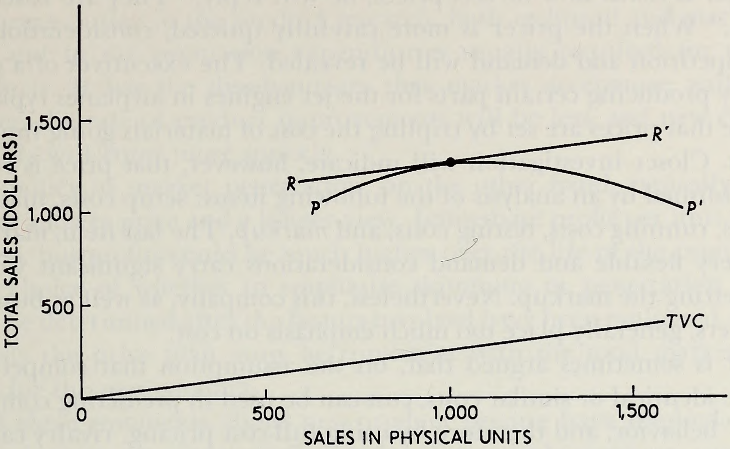
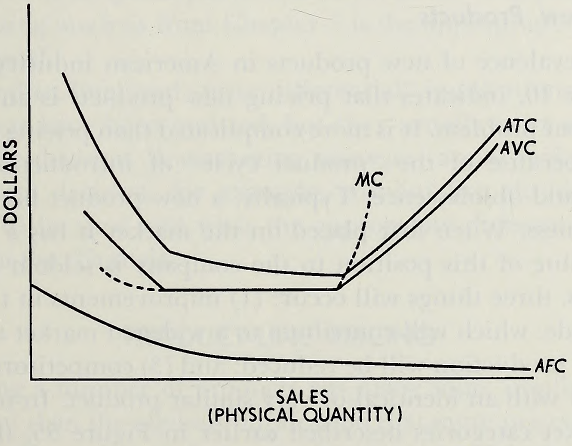


FIGURE 60

Typical Cost Relationships



this line had been set by a formula based upon a cost which was the *average* for all items in the line. A competitor became aware of this practice and cut prices a little on the simple items in the line which caused buyers to turn to the competitor for these items and to continue to buy from the Midwestern manufacturer those items that were more complex, more costly but less profitable because the gross margin being the average of all products in the line was lower than it should have been for this type of item.

It is easy to exaggerate, however, the extent to which the full-cost method is so inflexibly used in practice. Many times when a company pricer is asked how he sets prices, he will reply, "They are based on cost." When the pricer is more carefully quizzed, considerations of competition and demand will be revealed. The executives of a company producing certain parts for the jet engines in airplanes typically state that prices are set by tripling the cost of materials going into the part. Closer investigation will indicate, however, that price is really established by an analysis of the following items: setup costs, material costs, running costs, testing costs, and *markup*. The last item, markup, is very flexible and demand considerations carry significant weight in setting the markup. Nevertheless, this company, as well as business pricers, generally place too much emphasis on cost.

It is sometimes argued that, on the assumption that competitors have identical or similar costs, cost can be used in predicting competitors' behavior, and therefore by using full-cost pricing, rivalry can be held to a minimum. Industry studies suggest, however, that there are often considerable differences in costs among companies.

Pricing New Products

The prevalence of new products in American industry, discussed in Chapter 10, indicates that pricing new products is an important management problem. It is more complicated than pricing established products because of the "product cycle" of introduction, growth, maturity, and obsolescence. Typically, a new product has perishable distinctiveness. When first placed on the market it has a monopoly, but the value of this position to the company is seldom certain. As time passes, three things will occur: (1) improvements in the product will be made, which will contribute to a widened market acceptance; (2) costs of production will be reduced; and (3) competitors will enter the market with an identical or very similar product. In terms of the three market categories described earlier in Figure 55, the product will run the gamut of at least a part, if not all, of the continuum from Market 3 to Market 1.

Pricing the new product requires an estimate of just where the product will be in the cycle at various points in time. In addition, the price decision itself will significantly influence the speed at which the new product will pass through the cycle—a high price with consequent high profit will stimulate competitive inroads.

Two extremes of pricing policy can be considered: a skimming policy and a penetration policy. A skimming policy involves setting the price at a relatively high level in order to "skim off" the most profitable customers in the market. It is a good way to recoup quickly the heavy outlay in the product research, both technical and marketing, and in the promotion expenditures usually required for new products. It has the disadvantages that market acceptance will be slower, the rate of product improvements will be less, and new competitors will enter more quickly.

A policy of market penetration, on the other hand, typically involves a lower price and a longer view. Immediate profit per unit will be less, but profits could be much higher over the life of the product. The choice of whether to emphasize skimming or penetration can only be determined after the factors involved have been evaluated. Obviously the price plan must be consistent with the total marketing plan for the new product.

As these comments about new-product pricing have implied, the price decision on a new product today, figuratively speaking, can influence tomorrow's cost and revenue, and also partly determines the price that will be the best price to set day after tomorrow. Under these circumstances of temporally interrelated prices and demand, the long-run optimizing analysis from Chapter 7 is the appropriate normative decision model.

The "product-line" and "price-differential" implications of pricing new products have been omitted, but they usually exist and should influence the decision. A marketing manager cannot make the most effective price decision, for example, without first deciding which channels will be used and what the appropriate discount will be at each level in the channels.

PRODUCT-LINE PRICING

Producing a number of products has many more implications for management than the obvious implication that more prices have to be established. Since the products may be interrelated both on the demand side and on the cost side, the problem is to formulate a system or structure of product-line prices that will take the greatest possible advantage of these interrelationships.

Competitive Behavior

Competitive relations are important in product-line pricing because the intensity of competition may vary markedly among members of the line. Prices should be tailored to meet these competitive differences. It is usually helpful to divide the problem in two parts: a short-term view which serves as the basis for estimating the probable competitive relations with the present competitors; and a long term view which investigates potential competition.

Demand

Some of the automobile manufacturers produce a "prestige" car even though only a few of these units are expected to be sold. The prestige car illustrates the case where different members of a product line are related on the demand side. Ford has its Continental; Chrysler, its Imperial; and Cadillac introduced the Eldorado Brougham to sell for $8,500. One purpose of the "prestige" model is to reflect an aura of quality on the entire line.

"Trading up" is another example of how products are related on the demand side. A customer intends to purchase a cheap model, but as he learns more about the characteristics of the product in the process of purchase, his enthusiasm increases and he ultimately buys a more expensive model than he intended. The practice is conspicuous in the automobile market, but is by no means confined to it. Bell and Howell Company brought out a new home-movie projector which sold at one half the price of the established model. Management expected that the new projector would be substituted for the old one. On the contrary, the sales of the established model increased sharply. Although other factors were present, management felt that the primary reason was the "trading-up" role of the cheaper projector.

The above examples also suggest the possibility of profitably segmenting the market through effective combinations of price and product, which will be investigated further under "Price Differentials."

Much retail pricing is primarily determined by relations among products on the demand side. A department store will attempt to develop among the public a certain "image" of the store. For example, the "image" can be one of prestige, and the setting of prices must be consistent with this image. Prices are set first, then products are purchased to be sold at these prices.

Cost

The members of a product line are usually related on the cost side through common costs. For example, if one of two products having common costs is dropped, the remaining product may have its incremental cost increased as a consequence. Changing the level of sales of one product may also affect the cost of another product. The reader is referred to the discussion of the analysis of traceable and common costs in Chapter 7 which is applicable here.

Methods of Product-Line Pricing

In formulating a structure of product-line prices it may be useful to start from some pattern. The following have been suggested as possible ways of establishing systematic patterns:[23]

1. Prices that are proportional to full cost, i.e., that produce the same percentage net profit for all products.
2. Prices that are proportional to incremental costs, i.e., that produce the same percentage contribution-margin over incremental costs for all products.
3. Prices with profit margins that are proportional to conversion cost, i.e., that take no account of purchased materials cost. Conversion cost corresponds to the value-added concept.
4. Prices that produce contribution margins that depend upon the elasticity of demand of different market segments.
5. Prices that are systematically related to the stage of market and competitive development of individual members of the product line.

Cost alone serves as the basis for the first three rules; they are unsatisfactory on the grounds that they ignore considerations of competition and demand. There can be no quarrel with the fourth, if it is interpreted to include adequate consideration of product interrelationships; it is simply an application of the short-run optimizing model to the more complex problem of interrelated products. The fifth rule is designed to incorporate the product-cycle aspects of pricing discussed earlier in connection with pricing new products, but it provides little guidance.

PRICE DIFFERENTIALS

Previous discussion has dealt with setting prices in a single-product company and with giving considerations to the interrelations among members of the line in formulating a structure of prices (product-line pricing). Here consideration will be given to the fact that conditions of purchase differ, and that maximum effectiveness in pricing requires that prices be tailored to conform to these varied conditions. The differences in prices that arise as a consequence of the different conditions of purchase are called "price differentials."

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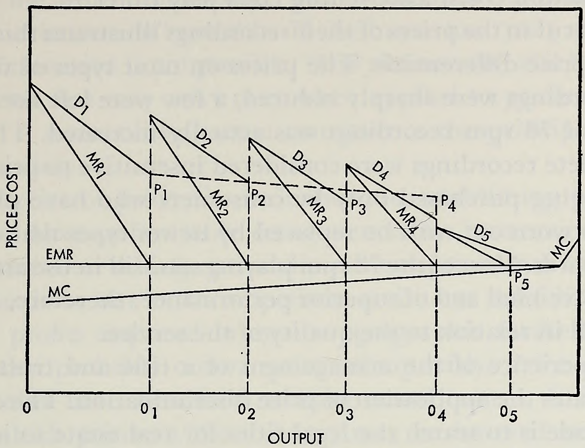
[23] Dean, *Managerial Economics, op. cit.,* pp. 473–77.

The principal bases of systematic price differentials are: (1) trade status of the buyer (functional discount), (2) amount of his purchase (quantity discount), (3) location of the buyer (geographic prices), (4) promptness of payment (cash discounts), (5) time of purchase, and (6) the buyer's personal situation. The last two bases give rise to seasonal discounts, for example, and informal price concessions; summer discounts are given to industrial users by public utilities supplying gas. An adequate gas capacity must be available during the winter when gas is used for domestic heating, while there is a great surplus of gas during the summer when there is a decline in demand. Informal concessions come about because of differences in bargaining strength among buyers. Discussion will be confined to the first four kinds of discount which are, typically, more important.

Principles of Setting Price Differentials

Adjusting intermarket price differentials is often critically essential to the growth of a company because they are the means by which a company invades new markets. The play of economic, political, social, and technological forces gives rise to market changes; by adjusting differentials to changing price-elasticities the company is able to take advantage of the opportunities created by these changes. The principle for setting the differentials to maximize profits is that the price is raised in the inelastic market, relative to the price in the elastic market, to such a level that the marginal revenue in each market is equal to the common marginal cost. This rule is illustrated in Figure 61 in which a company has five markets for the same product. Let us assume that these markets are completely separate and independent instead of related as in product-line pricing problems. For *each* market there is a demand curve (D) and a marginal revenue curve (MR). There is but one marginal cost curve (MC). The five markets are arranged in decreasing order of profitability because the most profitable market will be served first; the second most profitable, next, etc. The company can always sell more in Market 1 by lowering the price, as indicated by D_1, but the question is: where should the price be set in Market 1 so as to have the most profitable combination of price and sales volume? To answer this question we must consider all five markets. The optimizing rule is: *set each of the prices so as to distribute the company's production among the five markets in such manner that marginal revenue is the same in all markets and is equal to marginal cost.* The level of the marginal cost curve (MC) changes in Figure 61 at different levels of sales (O), but the specific marginal cost

FIGURE 61
OPTIMUM PRICE DIFFERENTIALS



Source: Eli W. Clemens, "Price Discrimination and the Multiple-Product Firm," *Review of Economic Studies*, XIX (1950–51), 5.

to be used in the analysis is that level in Market 5 where MR_5 intersects MC. Then the prices are set so that the marginal revenue in each market is equal to the equal marginal revenue curve (EMR). The EMR line is derived, first, by aggregating the marginal revenue curves of the five markets horizontally to yield an aggregate marginal revenue curve; the intersection of this aggregate marginal revenue curve with the marginal cost curve establishes the appropriate level of the equal marginal revenue line (EMR). Thus, the optimal prices would be P_1, P_2, P_3, P_4, and P_5.

We began the analysis by assuming that the company in Figure 61 had already decided to serve these five markets, and the only question remaining had to do with the optimal prices. Often the issue, however, is whether the company should attempt to serve a particular market at all. The rule is: serve each market as long as the price exceeds marginal cost. As can be seen in Figure 61, price is just a little above marginal cost in Market 5, and so if our company had been serving only Markets 1 to 4, it would add to its profits by also entering Market 5.[24]

These useful guiding principles encounter the limitations of measuring marginal revenue and cost and of assuming that the cost of producing and selling the product is the same in the different market

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[24] Had the company been serving only the four markets, the optimal prices would be slightly lower than with five markets because of the lower marginal cost at the restricted sales.

segments. Often, the products must be slightly differentiated in order to segment the market, which may lead to different rather than identical production costs; also, selling costs may differ.[25]

R.C.A.'s cut in the prices of their recordings illustrates this principle of setting price differentials. The prices on most types of the higher-speed recordings were sharply reduced, a few were left the same, but the price of 78 rpm recordings was actually increased. The sales of these obsolete recordings were considered insensitive to price because they are being purchased only by consumers who have playing sets that, when worn out, will be replaced by newer types that do not use 78 rpm records. Most of the 78 rpm playing sets still in use are probably the expensive kind and of superior performance; therefore, the record cost is small in relation to the quality of the service.

The experience of the management of a title and trust company also illustrates the application of price discrimination. The company's stock in trade is to search the legal titles for real estate to insure that they are clear of legal claims. In the past the company had priced the service according to each title searched rather than to offer a quantity discount. A group of 15 attorneys approached the company requesting a special rate. The attorneys were interested in land that was lying vacant and unused because of back taxes and which would have gone unrecovered if the regular title fee had been charged. It would have been impossible to sell the lots at a profit because the delinquent taxes plus the title clearance fees would have made the lots too expensive. By setting a lower price to the 15 attorneys, additional sales of the company's services were obtained. It was estimated that 3,000 lots were recovered each year as a result of the discriminating fee.

Welfare Aspects of Price Differentials

"Price discrimination" is loaded with emotional content. The most obvious reason is that price discrimination can exist only where a company has monopoly power in a technical sense. "Monopoly power" means that the company has a downward sloping price-sales relation. This condition is in contrast to the conditions formulated in the model of pure competition where the company can set a price no higher than the prevailing market price and where it would be unwise to set a lower price. In many cases the assumptions of this model of pure competition are not consistent with the conditions of technology in the real world, and in most cases they are not consistent with the level of information. Nevertheless, there is a strong sense of opprobrium attached to the word "monopoly" which describes the condition that makes "discrimination" possible. If the buyer has ready alternatives, then discrimination is not possible. "Discrimination" also has political connotations that may carry over when applied to pricing—discrimination in a sociopolitical sense contravenes the principles of a democratic society.

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[25] For the appropriate analysis when costs differ among market segments, see Eli W. Clemens, "Price Discrimination and the Multiple-Product Firm," *Review of Economic Studies,* XIX (1950–51), 7.

The practice of price discrimination, or establishing price differentials, can have unfavorable consequences for economic welfare. A large organization selling nationally can cut prices in a local market in order to drive out local competitors and it can subsidize this practice from profits acquired in another geographic market. Although possible, this probably occurs quite infrequently. Price discrimination can also have beneficial welfare consequences. It is a device through which prices in the industry may be lowered and thus the benefits of technological change passed on to the buyer. New technology in the form of cost-reducing machinery permits a company to lower its costs. If the reduction in costs happened to be of considerable magnitude and the company correspondingly lowered its prices to all buyers, in the extreme case, chaotic competition might follow. By discriminating in favor of a segment of the market, the transition to the lower price level occurs more smoothly. Competitors will in time meet the price reduction in one market segment, and then the company will cut price in another segment. This smoother transition in lowering prices probably encourages investment in new equipment.

An extensive discussion of the welfare implications of price differentials will be avoided, although the legal considerations contained in the Robinson-Patman Act, which were set forth in Chapter 9, must be recognized. These present some of the toughest legal problems the marketing manager is likely to encounter. The legal considerations are so important in setting price differentials, particularly for a large company engaged in interstate commerce, that it is sometimes wise to explore the legal implications of alternative differential patterns before investing in extensive executive time or research to change differentials.

Practical Problem of Price Differentials

The practical problem of setting price differentials involves three phases: (1) determining which markets differ enough in elasticity to justify segmentation; (2) selecting devices for separating and sealing off these segments; and (3) determining the appropriate pattern of price differentials. Differences in elasticity among members of the product line can be estimated by applying the general conceptions of causes of elasticity discussed above under "Single-Product Pricing." For example, among industrial products, one member of the product line may represent a small part of the total cost of the end product in which it is used, and another member may represent a large part of the total cost of the end product. The first is likely to have a lower elasticity than the second, which suggests that, relatively, the price should be raised on the first product and lowered on the second product.

There are few general rules for sealing off markets. Using different brands and different distribution channels are perhaps the most common devices for sealing off markets. Particularly in consumer markets, the buyer is often not well informed. Among department stores this is illustrated by the distinction sometimes found between "upstairs" and "basement" prices. Factors such as prestige, the level of information, and convenience probably explain why the practice of charging different prices among floors is possible.

The appropriate pattern of price differentials is obtained by approximating, insofar as possible, the optimizing model presented in Figure 61, taking into account the interdependence of products on both the cost and demand side.

Distributor Discounts. One of the most common patterns of price differentials is encountered in marketing channels. Generally, competition is more intensely focused on discounts to distributors than on end prices to the consumer. This is illustrated in the British electric lamp bulb industry where the manufacturers believe that the price-sales relation in the consumer market is highly inelastic so that price competition at the consumer level is inadvisable.

Industry custom largely determines the specific form of distributor discounts. They may be stated as either *net prices* at each level or *list price* to which a pattern of discounts is applied. The discounts may be *single* or consist in a number of *successively applied discounts,* such as "15 per cent, 10 per cent, and 5 per cent off list price."

In deciding upon the appropriate pattern of distributor discounts, one of the dominant considerations is the middleman's procedure for choosing brands. His lack of knowledge as to relative profitability of brands may cause him to think, first, in terms of gross margin as the major factor in his choice. Then, as a clue to how fast the product will sell, he considers how much advertising the manufacturer carries on in the form of both dealer aids and consumer advertising.

Competition is also a factor in distributor discounts. In 1955, International Harvester initiated its "Classified Trade Plan" for its truck-parts dealers. The plan provides for a subsidy to the dealer who must cut price in order to hold business. A sharp increase in independent parts manufacturers since World War II has led to somewhat chaotic competition among the distributors of truck parts.

In establishing a pattern of distributor discounts, it is essential to have reasonably accurate estimates of the cost that the manufacturer encounters in selling to the various distributors. The data can be persuasive in negotiating with distributors. Other things being equal, the profit contribution to the manufacturer of selling through alternative channels should set an upper limit to the size of the manufacturer's discount to the distributor in each case. Also, cost data may be necessary to justify the differentials to the antitrust agencies engaged in enforcing the Robinson-Patman Act. A method for determining the profit contributions of alternative channels was explained in Chapter 7.

There are serious legal implications in setting distributor discounts, largely because dealers at the same level in the structure are clearly in competition with one another so that noninjury to competition cannot be used as a defense. Differences in discounts among levels in the structure are legal. A retailer, for example, is usually given a larger discount—a larger per cent of the end price—than the wholesaler.[26] A discount to a nonbroker, e.g., a wholesaler or a chain retail organization, however, cannot be justified on the grounds that these organizations are performing the brokerage function. The recipient must be a bona fide broker.

Quantity Discounts. The following statement of types of quantity discounts can be helpful in considering the problem of whether to offer these discounts and what pattern of discounting to establish if they are offered:

1. With respect to the way "quantity" is measured.
    a) Aggregate of all products bought from seller.
        (1) Dollar-value measures.
        (2) Physical-unit measures, e.g., carload discounts.

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[26] Note the exception, however, that was made in the Kraft-Phenix case described in Chapter 9. Also a question can be raised when a company sells at more than one level in the structure. See Chapter 9.

- *b*) Separately based on the quantity of individual products.
    - (1) Dollar measures.
    - (2) Physical measures, e.g., integral case discounts.

2. With respect to the form of calculation.
    - *a*) Incremental, i.e., discounts figured on the increased volume over a specified amount.
    - *b*) Absolute, i.e., discounts figured in terms of total quantities.
3. With respect to number of transactions.
    - *a*) Cumulative, i.e., based on aggregate purchases over a period, such as a year.
    - *b*) Noncumulative, i.e., based on the size of a single order.[27]

The considerations in establishing a pattern are fourfold: legality, competition, demand, and cost. If the proposed pattern is legal, the question is whether offering discounts will increase profits. This in turn raises the two questions: (1) will some buyers increase their sales as a consequence, and (2) what will be the cost savings that result from the discounts? Practically, the cost savings usually occur in the areas of selling and distribution expenses rather than in the area of production costs.

Cash Discounts. The most common cash discount is 2 per cent, if paid in ten days, with the full price due in 30 days. Since the motive behind cash discounts is to speed up collection, they should be considered as an indirect collection cost. Collection within the time allowed by the discount will decrease the seller's cost of interest on working capital. Much more important, however, is the effect on reducing collection expenses and the effect on the risk of not collecting at all (bad-debt losses). Whether cash discounts actually do make a difference in collection expenses has sometimes been questioned. It has been pointed out that no real information is available on this point to guide the decision of whether to grant cash discounts.[28]

Geographic Price Differentials. The problem of setting geographic differentials in price arises largely because of freight costs; therefore, it arises mainly among products with which freight costs are a large part of variable costs. Also, the law concerning geographic differentials places additional emphasis on the role of cost in evaluating the legality of pricing methods. Geographic differences in competition and demand often exist and should be recognized in setting the differentials. The reader will find that some of the complexities encountered in geographic price differentials can be more easily understood if he thinks in terms of the market area and plant location models presented in Chapter 8.

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[27] Dean, *Managerial Economics, op. cit.,* p. 532.

[28] *Ibid.,* p. 541.

There are a number of methods of setting geographic differentials:

1. Uniform delivered pricing.
    - *a*) Postage-stamp pricing—distance from the seller to the buyer does not matter, analogous to the fact that a five-cent stamp will send a letter anywhere in the United States irrespective of differences in the actual cost of sending it.
    - *b*) Zone pricing—distance from the buyer to the seller is incorporated into the pricing scheme but only in a rough way. Zones are established, and delivered prices are different among the zones but uniform within any given zone. Mail-order houses use zone pricing.
2. Basing-point pricing.
    - *a*) Single basing point—some location (usually a plant site) is selected as the basing point and the price to all buyers then is computed by adding to an established base price the rail-freight cost from the base location to the buyer irrespective of the place from which the shipment is made, or in fact, irrespective of the method of transportation actually used.
    - *b*) Multiple basing point—the principle is the same as with a single basing point except that more than one point is selected and the buyer is charged a price computed from the nearest basing-point location.
    - *c*) Freight-equalization pricing—under this scheme all plants become basing points.
3. F.o.b. mill pricing—price is computed by adding the actual transportation costs to an established price, and the buyer selects the method of transportation used.

Until recently, the automobile manufacturing industry operated on a single basing-point system. Detroit was the base even though actual assembly was dispersed over the country. The result, of course, was widely different retail prices among areas. In late 1954, Ford cut the actual prices paid by distant dealers, which equalized prices somewhat, although not completely.[29] To illustrate the consequences, prior to the change in pricing, a Los Angeles car dealer paid freight of $280 on a Customline Ford. Under the new arrangement he paid $179.

There were probably at least two reasons motivating Ford to make the decision. One reason was the fear of antitrust action because of the "phantom freight" involved—the dealer was paying for freight that he was not receiving. Second, this gave rise to "bootlegging," to which the dealers objected. Because the freight charged exceeded the transportation cost, it was profitable for "bootleggers" to buy new cars elsewhere in the country and to ship them privately, for example, to compete with the Los Angeles dealers. General Motors and Chrysler soon followed the Ford action by modifying their geographic differentials.

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[29] *Business Week,* October 30, 1954, p. 33.

Two kinds of legal problems are raised by geographic price differentials: collusion and price discrimination. Historically, the single basing-point scheme was used as a collusive device. Companies in the industry would (1) agree upon a base price, (2) agree upon the factory to serve as the base mill, and (3) set all prices by adding the base price to the rail-freight cost from the base mill. Collusion is clearly illegal.

Aside from collusion, significant price discrimination features are possible. The reader should recall that there are three defenses for price discrimination: (1) costs are saved; (2) competition is not injured; and (3) it is necessary to meet competition. It has been argued that the only legal geographic pricing method is f.o.b. mill pricing. The following statement can serve as a guide:

> The discrimination problem may be summarized thus: Under the law of price discrimination, illegality depends upon the effect of a practice, and therefore there is no perfect certainty that any practice cannot possibly be challenged. F.o.b. mill pricing is safe because if it causes injury the cost . . . defense can always be used. Apart from collusion or effort to create a monopoly, uniform delivered pricing is reasonably safe, for practical purposes, because of the improbability that it will create an unlawful injury to competition among buyers. Freight absorption in good faith to meet competition is reasonably safe for the same reasons, and so long as it does not preclude price competition and raise the problem of collusion the Commission will not attack it. Basing-point systems and zone systems with price differentials between zones involve risk, though probably less than appears in connection with quantity discounts. The risk in using such systems can be substantially reduced by a seller who analyzes the complaints of his customers and changes his prices to remove any injury that appears.[30]

RESALE-PRICE MAINTENANCE

Since vertical price fixing is legal,[31] a company selling through middlemen is required to make the decision whether to set the prices that the middlemen will charge. This practice is called resale-price maintenance, or more popularly, "fair trading." Furthermore, providing the product is branded, a seller has access to the courts to aid in enforcing the prices in a number of states.

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[30] Corwin D. Edwards, "Doing Business under the Present Law about Delivered Prices," unpublished paper delivered before the Chamber of Commerce of Philadelphia, January 25, 1949, pp. 11–12. At that time Professor Edwards was the Director, Bureau of Industrial Economics, Federal Trade Commission.

[31] See the discussion of resale-price maintenance in Chapter 9.

One of the major arguments advanced for the use of resale-price maintenance is that it prevents a product from being used as a "loss leader" and subjected to the risk of losing consumer acceptance because of the "price-quality association." Also, because resale-price maintenance prevents competition at the retail level, for example, there is probably less demand from the retailers upon the manufacturer to increase their margins. It is also argued that if the middleman's selling price is protected in this way, he is more likely to provide the services and promotion desired by a manufacturer. The practice may improve relations with those middlemen requiring a high margin since they rather than the manufacturer are the source of most of the pressures for resale-price maintenance.

The practice of resale-price maintenance is probably desirable from a seller's viewpoint only if it is enforced rather extensively. The discount house, discussed in Chapters 8 and 11, owes its origin in large measure to the wide margins of conventional retailers made possible by resale-price maintenance. The practice led to retail margins which were larger than necessary to provide the kind of services that many consumers required. In some instances, functions such as service and financing were no longer provided by the middlemen and margins had not been lowered correspondingly.

The discount-house situation suggests why the W. A. Sheaffer Pen Company discontinued fair trading. A company spokesman is alleged to have said, "Sheaffer wants to get its product into the outlets where a large segment of the public is doing its buying. This means that Sheaffer products have to get into discount houses as well as into catalog and mail-order houses."[32] Sheaffer had previously been an ardent advocate of resale-price maintenance. "All in all, it dropped 680 dealers, started legal proceedings against 397, obtained 39 injunctions and got price-maintenance contracts from 210 retailers faced with law suits. This vigorous pursuit of a policy cost it $1,000,000 in an 18-month period, Sheaffer reported. The $1,000,000 included loss of business and the cost of buying back pens from discount houses as well as legal expenses."[33]

If enforcement of fair trade is only halfhearted, middlemen who prefer fair-traded products may not be willing to carry the product, or more probably, they will stock it but not display it. There is evidence that enforcement is becoming legally more difficult because a seller must enforce fair trade for all buyers before he can enforce it for a given buyer.[34]

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[32] *Advertising Age,* December 12, 1955, p. 1.

[33] *Ibid.,* p. 8.

SUMMARY

Pricing is probably more laden with folklore than any other area of marketing decisions. One of the reasons for this folklore is the dominant role of competitive relations in setting prices. Pricing becomes meaningful from either the point of view of how it is done or how it should be done only when competitive relations are understood.

Economic analysis and the model of buyer behavior, sensibly applied and supported by cost information and market research data, can contribute to pricing generally, and particularly to product-line pricing and to setting price differentials.

Competent legal counsel is required to a greater extent in setting prices than in any other area of marketing management. The importance of the law suggests that the price maker probably should know (1) why the law is what it is, (2) what is the public policy point of view, and (3) how to maximize profits.

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[34] See Chapter 9.

Chapter 13

PROMOTION DECISIONS—INTRODUCTION AND ADVERTISING

In practice there are many meanings applied to the term "promotion." In this chapter promotion will be considered as any effort on the part of the company intended to stimulate company sales through disseminating information to buyers or potential buyers. "Information" is defined in terms of the buyer's goals. It is a stimulus provided by the company that causes the buyer to perceive the product as an aid in achieving his goals.

As related to the buyer's goals, market information deals with the qualities, price, and availability of the brand or supplier. The information is from the buyer's viewpoint, however, rather than the viewpoint of a disinterested observer.

The two dominant types of promotional effort are advertising and personal selling; they will be treated as alternative means of accomplishing the end of informing buyers.

Not all expenditures for advertising and personal selling, however, are intended as promotion in the sense in which it is used here: (1) Public relations expenditures designed to influence public policy are common. A Kansas District Court judge criticized an insurance company's advertisements as an attempt to influence jurors. Appearing in *Life* and *Saturday Evening Post* the ads stated that casualty insurance rates were increasing because of "excessive jury awards rendered by jurors who feel that they can afford to be generous with the 'rich' insurance company's money."[1] (2) A Washington, D.C., furniture store ran some newspaper advertising in order to justify its failure to be open on Sundays in the face of an increasing tendency toward this practice by its competitors. The store's motive may have been to influence competitors to discontinue the practice or to affect its sales directly by lessening consumer ill will. (3) Salesmen often perform the noninformational funtions of delivering and servicing the product and acting as bill collectors. In the following discussion such uses of advertising and personal selling will be omitted for simplicity.

Promotion is only one of the influences on the buyer in the total marketing plan; its effectiveness is largely determined by how well the other parts of the marketing plan have been designed. Social scientists in their attempts to gain support for certain public causes sometimes envy the advertiser's ability to influence behavior. A thoughtful comparison by a sociologist between an advertiser's success and that of certain campaigns devoted to public causes, such as juvenile delinquency, concludes that the difference lies mainly in the adequacy of the "social mechanism."[2] "The advertiser sets up, or affiliates with, a social mechanism (the retail store) in which the behavior motivated by his advertising may be consummated with a minimum expenditure of energy. Then he advertises."[3] When the social mechanism is inadequate, as it was for a television campaign to get support for civilian defense, the promotional effort fails. This comparison suggests that certain conditions, which are the other elements of the marketing plan, must be appropriate in order for advertising to be effective.

A buyer receives information in many ways other than through promotional expenditure by the seller. The sources are limitless. Experience with the product, discussion with neighbors and colleagues, and reading newspaper editorials and magazine feature stories are some of the sources. Among consumer products a new development in sources of information has been the rise of two professional product-evaluating agencies, Consumers Union and Consumers' Research.[4] Brand ratings by Consumers Union are contained in its publication *Consumer Reports.* The circulation of this publication increased from 55,000 in 1945 to 715,000 in 1953, and these figures do not include estimates of secondary or "pass-along" circulation. Prices, also, are given in the publication.

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[1] *New York Times,* August 22, 1953, p. 19.

[2] G. D. Wiebe, "Merchandising Commodities and Citizenship on Television," *Public Opinion Quarterly,* XV (1951), 679–91.

[3] *Ibid.,* p. 680.

[4] For a discussion of the services, see Eugene R. Beem and John S. Ewing, "Business Appraises Consumer Testing Agencies," *Harvard Business Review,* XXXII, No. 2 (1954), 113–26.

Currently, such agencies are not a major force. Consumers Union estimated in 1954 that the two agencies' publications reached only 6 per cent of American homes. Their readership, however, is said to be weighted toward professional groups. A study of sales executives' attitudes toward these ratings concluded that 35 per cent of the executives felt that a bad rating did affect sales unfavorably and that half of them sometimes made changes in their product as a consequence of the ratings.[5]

At least two private companies have been established to provide for the special problem of used-car buyers who want information about the probable performance of a car they wish to purchase. One agency deals directly with the buyer who takes the car to a designated gas station for an inspection. The buyer is given a list of repairs needed by the car and their cost.[6] The other agency works with the dealer who is informed of the repairs that must be made in order for the agency to guarantee the car for a year's service. If the auto fails to perform for the warranty period, it is repaired at no expense to the buyer.[7]

In the following pages we will first discuss setting the total appropriation, followed by an examination of the problems of deciding upon the magnitude of the advertising appropriation, the selection of advertising media, the temporal allocation of advertising, the design of the advertising message, and finally, the use of co-operative advertising.

PROMOTIONAL APPROPRIATION

If advertising and personal selling are alternative ways of communicating information, it is appropriate to think of establishing advertising and personal selling appropriations as a joint problem—that of deciding upon an appropriation for promotion that will later be allocated between the two types of promotion. In practice the two types of promotion may not be managed in this way, but there is a trend in this direction as suggested by organizational changes in some companies in which a high executive—usually the vice president of marketing—co-ordinates all marketing activity. An editorial in one of the trade papers commented: "Whoever is charged with the marketing functions ought to have both functions (advertising and personal selling) under his complete control so that they can be used with perfect co-ordination, and *in such proportions* as to provide the most effective over-all sales program."[8]

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[5] *Ibid.*, p. 117.

[6] *Advertising Age,* September 26, 1955, p. 36.

[7] *Business Week,* December 17, 1955, p. 44.

As in any appropriation decision, establishing a total appropriation for promotion involves three steps: (1) formulating a criterion of effectiveness for evaluating the various amounts, (2) gathering the data appropriate to the criterion of effectiveness, and (3) relating the effectiveness to cost as the essential step in applying either of the optimizing principles.

Any one of five general criteria of effectiveness can be used: (1) the buyer's awareness of the promotion, (2) his attitude toward the promotion, (3) his awareness of the brand, (4) his attitude toward the brand, and (5) his purchases of the brand.

In a global sense the function of promotion is to provide information to the buyer. Although it is useful as a first approximation to describe the function in this way, to do so obscures the complexity of the problem and contributes little to the kind of understanding that the executive needs. By utilizing the model of buyer behavior, it is possible to explore the problem at a more fundamental level. Also, at this detailed level, advertising and selling at times seem to serve slightly different functions, but to avoid repetition, the two will not be distinguished in this preliminary discussion. Their unique functions will be developed later when they are discussed individually.

It will be recalled from Chapter 3 that in Extensive Problem Solving (EPS)—which characterizes the new product or, more generally, where any of the exogenous variables are unstable—promotion provides information cues which suggest something about the nature of the brand. These can operate by encouraging the buyer to generalize his purchasing response from a brand with which he has had previous experience. In addition, and more at the thinking level, they operate to change the buyer's predisposition (P) directly in the behavioral equation ($B = P \times D \times K \times V$) by showing the buyer that there is a relation between the brand and his needs. Experience with the brand (post-decision reinforcement), however, has a much greater effect than promotion upon behavior. This direct effect of promotion can be measured by the concept of attitude.[9]

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[8] *Advertising Age,* February 21, 1955, p. 12.

[9] As pointed out in Chapter 3, we wish to measure latent attitude, but it can only be inferred from overt verbal behavior—the expressed attitude.

Promotion can provide goal content (see Chapter 3), and also through the mechanism of relative deprivation it can affect the intensity of the buyer's goals. In addition, the *amount* of promotion presumably affects the intensity of the cues (V in the behavioral equation). Promotion can give the cues which enable the buyer in the face of uncertainty to rationalize his decision, both predecision and postdecision; through the mechanisms of selective attention, selective exposure, and selective retention, the buyer perceives those cues that support the decision, and thus perceptual bias operates to distort the objective information. Finally, mass promotion is a way of getting information into the social structure so that through interaction with his friends, the buyer is more likely to receive support for his decision. The social structure is made up of groups. The group has norms of behavior which each member must observe if he is to remain a member. Each member has a status, a position, in the group and he performs a certain function—a role—in that group. To the extent that he interacts with the group he tends to be a member. From this interaction he learns the group's norms which influence his goals, he learns how well specific brands serve these goals, and he receives moral support—social legitimation—in making purchases on the basis of incomplete information. Thus, the group significantly influences how a buyer will respond to a brand and to "outside" influences—advertising and selling—about the brand.

In Limited Problem Solving (LPS) where decision tends to be limited to choosing among a few alternatives even though many are available and where the product cues are dominant, promotion cues can serve a triggering function. Advertising may influence the product cues that are motivationally relevant for the buyer by calling attention to some cues and not to others. Also, the cues from promotion provide him with a basis for rationalizing his decision. Finally, the real world is seldom without some change, and there is often enough change in the exogenous variables to keep a buyer in LPS instead of his learning the habitual patterns that characterize Automatic Response Behavior. Promotion can serve the function of keeping the buyer up-to-date, for example, keeping him current with respect to his friends' goals so that he can modify his own goals accordingly.

In Automatic Response Behavior, promotion serves only a triggering function and does not affect the buyer's predisposition, but it can increase the probability of purchase by raising the level of the learning curve through increasing D, K, and V in the behavioral equation from Chapter 3, where $B = P \times D \times K \times V$.

Repeatedly in earlier chapters the point has been made that not all buyers are alike and that it may be necessary for the marketing executive to recognize these differences in the marketing plan by segmenting the market. Segmenting the market is especially important in deciding whether to use advertising or personal selling. Salesmen are often more economical than advertising for communicating to middlemen, while advertising is more economical for communicating to the consumer level of the marketing channel. One complication is that middlemen, especially retailers, are often unwilling to stock a brand unless it is advertised to the consumer, even though the advertising outlay is most uneconomic in other respects from the manufacturer's viewpoint.

Allocation between Advertising and Selling

Given a total appropriation for promotion, the question now is how should it be allocated between advertising and personal-selling expenditures? A common-sense approach is necessary in the discussion of this decision because of the lack of research on the topic. Either of two kinds of research could be helpful: research on (1) management practice or on (2) the processes by which advertising and personal selling change buyer behavior. The usefulness of the first type of research is limited by the fact that management as yet does not often think of advertising and personal selling as alternatives, and insofar as it does, its approach is probably intuitive.[10] Perhaps the reason is that many executives do not seem to have as much faith in the effectiveness of funds spent in advertising as they do in personal selling.[11]

Figure 62 contains the findings of a study in which 38 manufacturers allocated their promotional appropriations according to product.[12] For example, in promoting food products, advertising expenditures were twelve times greater than personal selling expenditures. In some cases the ratios varied among manufacturers of the same product—the dotted lines are used to indicate the range of variation. In women's apparel, the ratio varied from about equal proportions of advertising and personal selling to five times as much as personal selling. There is also a range for lawn mowers, cellulose tape, and other products.

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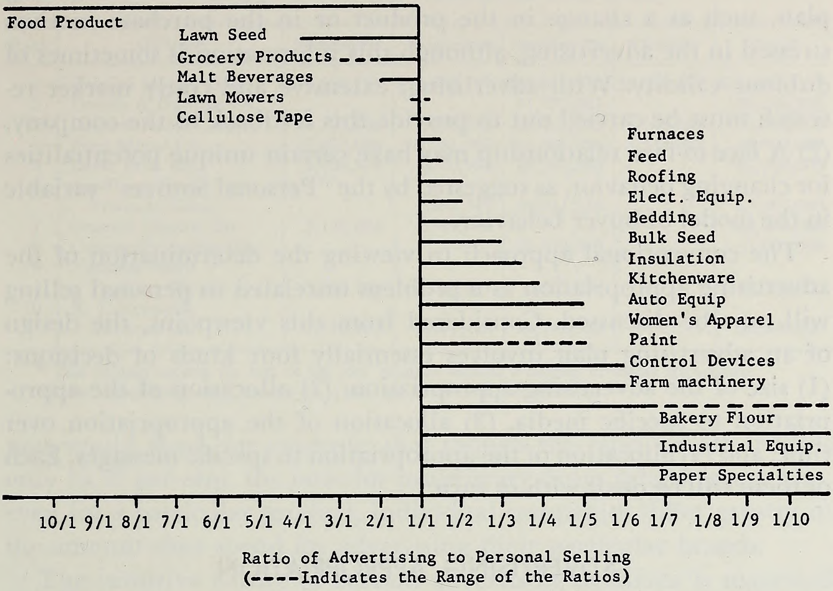
[10] See, however, Edwin H. Lewis, "Sales Promotion Decisions," *Business News Notes* (Minneapolis: University of Minnesota, November, 1954), pp. 1–5.

[11] *Ibid.*, p. 1.

[12] For an earlier and more extensive comparison of advertising and personal selling expenses, see Federal Trade Commission, *Distribution Methods and Costs,* Part V, *Advertising as a Factor in Distribution* (Washington, D.C.: U.S. Government Printing Office, 1944), Table 1, pp. 6–7.

FIGURE 62

RATIOS OF ADVERTISING AND SELLING EXPENDITURE BY PRODUCT



Source: E. H. Lewis, "Sales Promotion Decisions," *Business News Notes* (Minneapolis: University of Minnesota, November, 1954), p. 2.

One method that may help the executive to decide between advertising and personal selling is to compare their costs.[13] It has been estimated that an industrial salesman's call costs approximately $20, whereas direct mail would cost $1.00 per letter, and business-paper contact, one-half cent.[14] A 1962 survey puts the cost of a sales call at $30.35, but this is a mean figure in which the dispersion is truly great, the largest single figure being $368.08 and the smallest figure $2.50.[15] Moreover cost data are not very useful without corresponding estimates of effectiveness.

Common sense suggests that personal selling has a degree of flexibility typically not possessed by advertising. A salesman can search out his prospects more effectively. A salesman provides a "feedback" which has at least two aspects: (1) The buyer may have peculiar and even unique questions to be answered; for example, when a company buys a major piece of machinery, it may have needs springing from its own peculiar production process, location, etc. The salesman can transmit to his own management suggested changes in the marketing plan, such as a change in the product or in the purchase motives stressed in the advertising, although this information is sometimes of dubious validity. With advertising, extensive and costly market research must be carried out to provide this feedback to the company. (2) A face-to-face relationship may have certain unique potentialities for changing behavior, as suggested by the "Personal Sources" variable in the model of buyer behavior.

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[13] Howard G. Sawyer, "Can Ads Sell as Well as Salesmen," *Printers' Ink,* July 16, 1954, pp. 28–30.

[14] *Ibid.,* pp. 28–29.

[15] *Cost of an Industrial Salesman's Call,* Laboratory of Advertising Performance (New York: McGraw-Hill Publishing Co., Inc., May 1962).

The conventional approach to viewing the determination of the advertising appropriation as a problem unrelated to personal selling will now be discussed. Considered from this viewpoint, the design of an advertising plan involves essentially four kinds of decisions: (1) size of the advertising appropriation, (2) allocation of the appropriation to specific media, (3) allocation of the appropriation over time, and (4) allocation of the appropriation to specific messages. Each of these will be dealt with in turn.

ADVERTISING APPROPRIATION

A brief review of the advertising expenditures by a number of companies will be helpful in understanding the advertising problem. Table 25 presents the total national advertising expenditures of the ten largest advertisers in the United States in 1961 and the allocations to four major media. A national advertiser is here defined as one who sells outside a single locality. The left-hand column labeled "Rank" represents the rank of the company according to the amount of total expenditure. As suggested in Table 25, different companies select quite different media combinations. Also, a relatively few companies do most of the advertising. For example, it is estimated that the 100 leading national advertisers account for about one third of all national advertising.

The variation in the amount of funds devoted to advertising among *companies* is remarkable. Some of this variability is illustrated by Table 26, which provides a perspective on the nature of advertising. Table 26 presents the amount of advertising as a per cent of sales for particular products selected from more than 200 separate product groupings in 1959–60. These data are based upon tax returns reported to the Internal Revenue Service. Even these figures do not reveal the amount of variability among companies. Finer classification of prod-

TABLE 25

The Top Ten National Advertisers in 1961

Total Expenditures and Allocation to Four Media

Rank	Advertiser	Newspapers	Magazines	Network TV	Outdoor	Total*
1	General Motors Corp.	$29,652,721	$32,309,761	$23,811,830	$8,008,728	$141,500,000
2	Procter & Gamble Co.			51,927,897		132,724,000
3	General Foods Corp.	10,773,402	9,298,223	20,021,513	1,160,564	105,000,000
4	Ford Motor Co.	15,810,694	16,151,048	11,081,554	3,531,997	90,000,000
5	Lever Bros. Co.	5,353,579	4,270,995	28,761,548		87,000,000
6	American Home Products Corp.		7,382,347	33,911,210		65,300,000
7	General Electric Co.	5,176,624	7,143,540			63,000,000
8	Colgate-Palmolive Co.			21,513,940		57,000,000
9	National Dairy Products Corp.	7,776,366	7,040,377	8,905,956		53,000,000
10	R. J. Reynolds Tobacco Co.	7,515,104	5,511,125	21,740,922		50,000,000

* This column exceeds the sum of the four columns because a number of media are omitted.

Source: *Advertising Age,* January 15, 1963, pp. 29, 64, 66, 76, and 117.

ucts would show, for example, that though the ratio for all drugs is only 10.77 per cent, the ratio for proprietary drugs is far higher. Also, even for a particular product, individual companies differ greatly in the amount they spend for advertising their particular brands.

The intuitive nature of current advertising decisions is suggested by our lack of knowledge as to the characteristics of a company and its market that make it profitable to advertise. The experience of the president of a company known for its marketing skill further supports the intuitive nature of the appropriation decision:

> Just after I got back from my vacation in Maine, the advertising department presented its proposed budget calling for a total expenditure of more

TABLE 26

Percentage of Sales Invested in Advertising, 1959–60

Industry	Per Cent of Sale	Industry	Per Cent of Sale
Perfumes, cosmetics, etc.	14.01	Household appliances	2.86
Drugs	10.77	Advertising	1.75
Retail mail order	8.59	Household furniture	1.30
Soap, detergent, etc.	8.07	Glass and glass products	.70
Soft drinks, etc.	6.14	Agricultural chemicals	.66
Motion-picture theaters	5.57	Meat products	.50
Tobacco manufacturers	5.47	Paperboard containers	.22
Jewelry stores	4.31	Natural gas liquids	.15
Optical instruments and lenses, etc.	3.38	Railroads	.04
Photographic equipment	2.98	Iron ores	.02

Source: *Advertising Age,* January 15, 1963, pp. 278–79.

than $6,000,000 next year. If the production people had asked for one third as much, with as little justification of the need for it, I'd have fired them all.[16]

Measurement of Advertising Effect

Although the appropriation decision is largely intuitive, it should not be concluded, however, that all advertising decisions are based on so little evidence. Extensive research efforts, particularly by advertising agencies, have been devoted to media and message (copy) selection. Little of the advertising research, however, has been directed toward determining the sales effect directly by using sales as a criterion of effectiveness. Rather it has been characterized by attempts to *impute* effects on sales by means of an analysis of some more readily accessible intermediate factor (surrogate variable) with which sales effects are assumed to be associated.

Four of the more readily accessible intermediate factors which tend to be used are as follows: (1) One of the earliest steps to measure advertising effect was to analyze readership on the unverified assumption that readership influences purchase behavior. In terms of the criteria mentioned earlier, this is an awareness-of-advertising type of measure. "Readership" is ambiguous. First, the term can be applied to the medium, e.g., a magazine, or it can be applied to particular advertisements in a given medium. Second, the term can have various meanings from the standpoint of reading behavior. For example, the Starch Advertisement Readership Service provides information to advertisers in magazines and newspapers about "ad readership" according to (*a*) "Noted"—the per cent of a magazine's readers who remembered that they had seen the advertisement in the particular issue; (*b*) "Seen-Associated"—the per cent of readers who have seen or read any part of the ad which clearly indicates the brand or advertiser; and (*c*) "Read Most"—the per cent of readers who read 50 per cent or more of the written material in an ad. Readership studies are used primarily in selecting media and copy. (2) A second measure is attitude toward the advertising: is it good or bad advertising? A series of advertisements are prepared and presented to a sample of people. The one selected by the respondents as being the best is assumed to have the greatest effect on sales. (3) A third measure is awareness of the product and brand. Buyers are surveyed both before and after the advertising campaign and asked how much they know about the product. Any gain in knowledge represented by the difference in awareness levels between the two surveys is ascribed to the advertising. (4) Finally, attitude toward the product and brand is the fourth measure. If advertising appears to change reader attitudes—their evaluations of the product and brand—it is assumed that sales of the brand are being influenced.

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[16] Albert W. Frey, *How Many Dollars for Advertising* (New York: The Ronald Press Co., 1955), p. 1. A mathematical model has been developed for this decision, however. See Alfred A. Kuehn, "A Model for Budgeting Advertising," in Frank M. Bass *et al.* (eds.), *Mathematical Models and Methods in Marketing* (Homewood, Ill.: Richard D. Irwin, Inc., 1961), pp. 302–53.

The appropriate criterion to use in determining the effect of advertising is, of course, an important question. The criteria will be discussed only in terms of their accuracy as a predictor of purchases; the cost of collecting data in terms of each of the five criteria of advertising effectiveness, not to be confused with readership criteria, can readily be obtained in any concrete instance.

The marketing executive would much prefer to know the effect of advertising on sales. The validity of awareness of the ad—measured, for example, by the ability of the respondent to *recall* the ad—is dubious as a measure of sales effectiveness, although it has by no means been well researched. For that matter, only a few serious systematic investigations of any of the four nonsales criteria have come to the author's attention. At least one study, a study of dentifrices, has found no discernible relation between recall and effects on sales as measured by market share.

Most would probably agree that attitude toward the brand is the most accurate predictor of purchasing behavior, but the evidence cited in Chapter 3 suggests that at best attitudes are an imprecise predictor. The inaccuracies encountered in measuring attitudes are considerable. The interviewer collects an expressed attitude as a measure of the latent attitude. Expressing an attitude is merely another form of behavior. The model of buyer behavior suggests that the behavior represented in expressing the attitude would be a function of the buyer's drive, his view of the magnitude of the incentive potential and the intensity of the cues at the time of the interview. The attitude thus expressed is expected to reflect purchasing behavior carried out under quite another set of conditions. In addition, the attitude is expressed to the interviewer, another human being, instead of to some neutral mechanical receiver. This respondent-interviewer interaction situation has many implications for the buyer's behavior; for example, human beings learn defense mechanisms to use in dealing with others which may cause them to distort the information they give the interviewer. As a consequence it would be surprising if the verbal behavior did not deviate from the purchasing behavior.[17]

Many advertising people argue that attitude toward the product and brand is the most meaningful measure on the grounds that it is more correlated with sales than either of the three preceding measures and that it is impossible to measure the sales effect. In fact, the Association of National Advertisers, which is made up of the advertising representatives of most of the large companies, recently took this same position.[18] The Association's publication argues that advertising is only one of several marketing forces influencing sales and that there is a "carry-over"—advertising this year affects next year's sales, for example. The first argument is not at all persuasive. A multiplicity of causes merely complicates the measurement problem. First, it makes it more difficult to isolate the effect of any one variable because changes in the other independent variables obscure its effect. Second, if the variables interact, the problem is complicated still further because the effect of any one variable depends upon the values of the other independent variables. Neither of these possibilities, however, necessarily renders it impossible to measure the effects of advertising.

The second argument—that carry-over exists—has more merit. Carry-over apparently means that as a result of the impact of one set of cues (e.g., an advertisement) the buyer responds differently to another cue than he would if he had not been exposed to the first. In other words, his continuing behavior has changed as a result of the first set of cues: he has *learned*. Thus, the issue is, "When would learning be expected to occur?"

Learning would be expected *not* to occur when the buyer is fully learned, when he has "climbed" to the asymptote of the learning curve. Advertising could still have an effect on the level of the asymptote through drive, the incentive, and the intensity of the cue, but presumably it is temporary. Thus, the carry-over argument would not appear to be relevant to a stable (reasonably constant exogenous variables), fully learned market.

It could also be argued that unless the buyer responded to the advertising, only a limited amount of learning would occur, perhaps so little that it could be ignored. The point is that a buyer learns without reinforcement, as indicated by the latent learning studies, but he seems to learn much more readily with reinforcement. Evidence to substantiate this argument is lacking, however.

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[17] For an extended discussion of the relation between attitude and behavior, see John Dollard, "Under What Conditions Do Opinions Predict Behavior?" *Public Opinion Quarterly*, XII (1948), 623–32.

[18] Russell H. Colley, *Defining Advertising Goals* (New York: Association of National Advertisers, 1961), pp. 10 and 11.

Finally, further support for the possibility of using sales as the measure of the effect of advertising is that a statistical design has been developed which can identify and adjust for carry-over. It assumes that the effects are additive; this means that the joint effect of two ads is the sum of their individual effects rather than a multiplicative relation, for example. So far as we know from learning theory, the effects in learning are additive. But if there is a carry-over of a motivational effect (D), it would be multiplicative as indicated by the behavioral equation.

Qualitative Criteria for the Appropriation Decision

The important question from a management viewpoint is whether there are qualitative criteria that can guide management in deciding the magnitude of the advertising appropriation. In other words, are there objectively identifiable conditions in a company's market situation that will suggest whether or not advertising will be effective? A comparison of British and American newspaper advertising, shown in Table 27, suggests that the decision to advertise is not a matter of management's whim. The close relation of expenditures between the two countries of the various products listed, indicated by a correlation coefficient of + 0.93, suggests, though not conclusively, that there are certain underlying factors, perhaps psychological, sociological, and technological, that make it profitable to advertise in some situations and not in others. Since the study was confined to the newspaper medium, an immediate question is whether the nature of the media differed significantly between the two countries. Except for radio, which was relatively unimportant, there was little difference in the kinds of media used.[19]

A study of American advertising concludes that there is a statistically significant difference in the level of advertising among the manufacturers of consumer nondurables, consumer durables, and industrial products. The data on which the conclusions were based are shown in Table 28. The ratios of advertising to sales are planned ratios rather than those that may actually have occurred. For example, a company

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[19] Nicholas Kaldor and Rodney Silverman, *A Statistical Analysis of Advertising Expenditures and Revenue of the Press* (Cambridge, England: The University Press, 1948), pp. 17–18.

TABLE 27

Manufacturers' Expenditures on Newspaper Advertising as a Proportion of Manufacturers' Net Sales of Selected Consumers' Goods in the United Kingdom and the United States, 1935*

	Percentages	
	United Kingdom	United States
Flour	1.8	.4
Canned and bottled foods	2.2	2.3
Coffee, tea, cocoa, beef extracts, etc.	3.3	3.2
Cereals, biscuits, and preserves	4.3	6.5
Sweets and toffee	3.6	5.3
Beer	1.8	4.7
Soft drinks	3.6	15.0
Tobacco	9.3	8.2
Soaps, cleansers, polishes, and disinfectants	13.0	13.0
Heating and refrigerating equipment	4.9	5.7
Domestic electrical equipment	5.4	4.5
Radios and accessories	8.6	5.3
Boots and shoes	.9	4.0
Hosiery and knitted underwear	1.5	4.2
Toilet goods	25.0	28.0
Proprietary medicines	37.0	34.0
Motorcars, motorcycles, and accessories	4.2	4.0
Petrol and motor oil	8.7	6.4

* The American figures were obtained from three surveys, two undertaken by the Association of National Advertisers (1931 and 1934 to 1935) and one by the Harvard Business School, into the marketing expenses of grocery manufacturers for 1927. The number of firms included in each commodity appears to have been small (from 3 to 41 in the 1934 to 1935 enquiry).

Where these surveys give data for the same commodities for 1935 and an earlier year there does not, in general, appear to have been any great change in the percentages between the two years. The United Kingdom ratios relate to manufacturers' sales exclusive of duty and the American figures are comparable.

Source: Nicholas Kaldor and Rodney Silverman, *A Statistical Analysis of Advertising Expenditure and Revenue of the Press* (Cambridge, England: The University Press, 1948), pp. 30–31.

TABLE 28

Average Percentage Relationship of Advertising Outlay to Sales

	1930	1933	1935	1939
Consumer nondurable	8.8	12.0	12.7	13.2
Consumer durable	5.7	7.3	5.3	4.7
Industrial	4.4	2.3	3.7	4.6

Source: Roy W. Jastram, "Advertising Ratios Planned by Large-Scale Advertisers," *Journal of Marketing,* XIV (1949–50), 17.

may have planned to spend 8 per cent of sales on advertising, but since its sales forecast often turns out to be inaccurate, the actual ratio could have been quite different. A possible explanation of why differences in the amount of advertising exist among types of products is that the buyers of industrial products are typically professional purchasing agents who are well informed, have the technical means for evaluating a product (e.g., a testing laboratory), and are motivated to buy carefully. As suggested in Chapter 3, however, one must be cautious in applying this conclusion to industrial buying generally. Perhaps a better explanation is that in industrial products larger sums are devoted to personal selling. Consumer-durable buyers are often said to be less well informed; but since they are buying a product of relatively high unit price and since the product is one that will be used for a fairly long period, buyer planning is encouraged. Consumer-nondurable buyers, on the other hand, do not have a major investment in a single purchase, and if a mistake is made it can be rectified soon. They do not buy carefully and therefore are willing to rely more upon what the advertiser tells them about the brand.

Borden, who has done some of the most extensive research in advertising, offers the following hypotheses about the conditions under which advertising will be effective: (1) if industry demand is expanding, (2) when there is a substantial chance of differentiating the product, (3) where hidden qualities exist that cannot be judged at the time of purchase, and (4) when strong emotional buying motives exist such as the protection of health or enhancement of social position.[20] The buyer behavior model can be used to elaborate Borden's hypotheses. If demand is expanding and if this expansion is brought about by new buyers in the market, these buyers will be seeking information both before and after their purchase to support their decision. Information about one brand and not about another can make a difference in which brand they choose. A "substantial chance of differentiating the product" means that the product can be presented in forms (actual product, package, label, etc.) which will permit different brands to present a different set of cues to the buyer. To be cues for the buyer, the characteristics of the brand need not be those that an engineer would refer to in writing engineering specifications for a product; mere color may be the cue by which the buyer discriminates.

The "hidden qualities . . . that cannot be judged at the time of purchase" suggest that the buyer will be forced to greater search in making the decision. In addition, however, and not necessarily implied in the hypothesis, is the fact that the qualities may remain "hidden" after the decison; Ease of Post-Decision Evaluation was designed to meet this latter problem. To the extent that it is difficult for the buyer to evaluate the brand after the decision, advertising can provide support for rationalizing the decision. A product that is difficult to evaluate post-decision is also difficult to evaluate predecision, although the reverse does not follow.

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[20] Neil H. Borden, *The Economic Effects of Advertising* (Homewood, Ill.: Richard D. Irwin, Inc., 1944), p. xxvii.

"Strong emotional buying motives" is approximately the counterpart of drive, and more specifically, it is the counterpart of Intensity of Goals and Importance of Purchase. The more intense the goals that are being satisfied by the decision, the more the buyer will seek out information, except perhaps in the case of exceptionally high drive where the anxiety engendered by it may cause the person to take the most available brand. Presumably, with intense goals the buyer would be subject to a large amount of post-decision dissonance. This would make advertising profitable.

In the economic literature the hypothesis is advanced that advertising is heavy in concentrated industries, that is, where there are only a few companies. This hypothesis was given some support in a British study which found "the percentage of advertising in manufacturers' sales was largest in those trades where between four and nine firms accounted for the bulk of the advertising."[21] The theory is that when there are a few competitors, advertising rivalry is substituted for price rivalry because price rivalry may get out of hand. Another hypothesis, often advanced, is that there are economies of scale in advertising so that the unit cost of advertising decreases as the company becomes larger. There is some support for this belief.[22]

Finally, the role of the business cycle in shaping advertising effectiveness has long been a topic of discussion among advertisers, although little is known in fact. Based on the belief that a buyer must have purchasing power in order to buy, the hypothesis has been advanced that income elasticity and changes in promotion elasticity tend to be positively related over the cycle. If this hypothesis is valid,[23] advertisers of products with high-income elasticity should be more inclined to vary their advertising expenditures with the cycle. Historically, most advertisers have varied their advertising expenditures with the cycle, although there is evidence, presented subsequently in Figure 66, which suggests that perhaps the practice is becoming less common. However, setting a minimum level of advertising cyclically has been suggested on the grounds that the advertising effect is perishable, brand preference is more costly to recover than to hold, and advertising costs decline in a depression.

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[21] Kaldor and Silverman, *op. cit.*, p. 36.

[22] Joe S. Bain, "Advantages of the Large Firm: Production, Distribution and Sales Promotion," *Journal of Marketing*, XX (1955–56), 339–41.

[23] Joel Dean, "Cyclical Policy on the Advertising Appropriation," *Journal of Marketing*, XV (1950–51), 271.

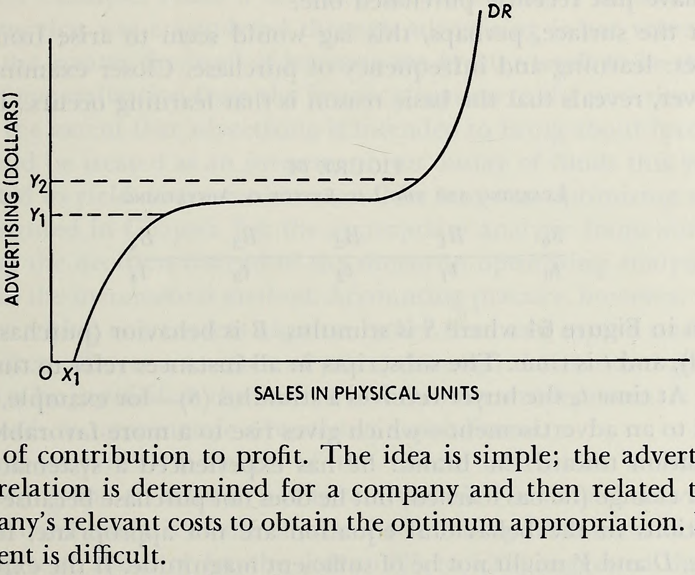
Methods of Establishing an Appropriation

Although there are a number of possible methods of deciding upon the size of an advertising appropriation, the "per cent-of-sales" criterion, "objective-and-task" method, and "incremental" method will be discussed. The "incremental" approach, which conceptually is the ideal, serves to point up the weaknesses of alternative methods.

Incremental Method. The incremental method is sometimes called the "logical approach" because it places the problem of determining the advertising appropriation into the appropriate framework of contribution to profit. The idea is simple; the advertising-sales relation is determined for a company and then related to the company's relevant costs to obtain the optimum appropriation. Measurement is difficult.

FIGURE 63

THE ADVERTISING-SALES RELATION



Let us first deal with the analysis of the advertising-sales relation alone and later include the cost element of the decision. Some empirical data suggest that the shape of the relation might be as indicated in Figure 63.[24] The idea is that some sales (OX_1) would occur with no advertising, (OY_1) would have a limited effect, but that a larger amount of advertising (OY_2) would be highly effective. Ultimately, however, the stage of sharply diminishing returns (an amount greater than OY_2) would be reached.

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[24] Sidney Hollander, Jr., "A Rationale for Advertising Expenditures," *Harvard Business Review,* XXVII (1949), 79–87.

When the criterion of effectiveness is sales, the problem of measurement is essentially the same as for the price-sales relation discussed in the previous chapter. Perhaps the major difference between the two problems is that competitive relations can be more easily ignored in advertising, but there is probably a greater tendency for a delay or lag between advertising and sales. All of the four nonsales criteria discussed earlier avoid the lag problem, but to arrive at a profit estimate the sales criterion must be used. Common sense suggests that, for some products, there is a lag between the time a buyer sees an advertisement and the time that he purchases the brand.[25] Among consumer products, durables would seem to be the most obvious example. A consumer sees a refrigerator advertisement today but may not be in a financial position to buy one for another six months or he may have just recently purchased one.

On the surface, perhaps, this lag would seem to arise from two sources: learning and infrequency of purchase. Closer examination, however, reveals that the basic reason is that learning occurs. This is shown in Figure 64 where S is stimulus, B is behavior (purchase of a brand), and t is time. The subscripts in all instances refer to time periods. At time t_0 the buyer receives a stimulus (S)—for example, is exposed to an advertisement—which gives rise to a more favorable predisposition toward the brand: he has experienced a systematic behavior change (he has learned) but he does not purchase because other conditions in the behavioral equation are not appropriate, for example, D and V might not be of sufficient magnitude. If the exposure is not accidental—if he is actively searching for information as in Phase 1 of the buying decision process—it is more likely to have a learning effect since in Phase 1 the buyer is sensitive to information cues. When later the other conditions in the equation are appropriate

FIGURE 64

Learning and the Lag Effect in Advertising

S_0	B_1	B_2	B_3	B_4
t_0	t_1	t_2	t_3	t_4

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[25] For a brief comment and references to the conviction that a lag may exist, see Roy W. Jastram, "A Treatment of Distributed Lags in the Theory of Advertising Expenditure," *Journal of Marketing,* XX (1955–56), 36–46. Also, see D. S. Tull, "An Examination of the Hypothesis that Advertising Has a Lagged Effect on Sales" (Doctoral dissertation, The University of Chicago, 1956).

and he is triggered to make a purchase of the brand, at t_1, for example, the predisposition learned at t_0 comes into play and influences his choice. It could be, however, that the conditions other than P would not be appropriate until still later; for example, t_4 and then purchase of the brand (B_4) would take place. Finally, a number of advertisements (not shown in Figure 64) could be required to raise P to the necessary level to lead to a purchase at t_4. Thus, the basic source of the lag is the learning effect.

Frequency of purchase, however, makes a difference in the sense that with infrequent purchases (unpracticed responses) forgetting is likely to occur and weaken the effect. Also, the buyer does not experience the use of the product as quickly and so is not reinforced as soon; the delay reduces the learning effect. These two conditions tend to decrease the probable payoff for advertising.

If conditions in the market change and a new learning process ensues, for example, Phase 3 behavior becomes Phase 1 behavior, the learning that was engendered through advertising is not wasted because the greater the level of learning the greater tends to be the degree of generalization from the former situation to the new situation.

To the extent that advertising is intended to bring about learning, it should be treated as an investment: an outlay of funds this year is expected to yield a return next year. The long-run optimizing analysis presented in Chapter 7 is the appropriate analytic framework for making the decision instead of the short-run optimizing analysis implied in the incremental method. Accounting practice, however, treats all advertising as a current expense rather than as a capital outlay to be written off over a number of years; although the accounting practice may be justified on the basis of income tax considerations, it probably leads to uneconomic advertising expenditures.

Good empirical evidence of the effects which the amount of advertising has on sales in a concrete situation is indeed scarce. An inconclusive analysis of the effects of advertising on market share in the cigarette industry for the years 1925 to 1939 suggested that for every 1 per cent increase in American Tobacco Company's (Lucky Strike) advertising, its share of the market increased approximately 0.55 per cent. These results are interesting because advertising was the only important competitive tool. There were no intercompany price differences and no significant changes in the product or marketing channels.[26] A careful and more extensive study of the same industry for the same period estimates that Lucky Strike received a marginal rate of return of about 15 per cent on its expenditures in advertising and that Camels received a marginal return of about —6.8 per cent. The negative marginal return suggests that Camels spent too much on advertising.[27]

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[26] William H. Nicholls, *Price Policies in the Cigarette Industry* (Nashville, Tenn.: Vanderbilt University Press, 1951), p. 132. The correlation coefficient, however, is only 0.64 unless an extreme year (1932) is omitted, which aises it to 0.73.

To obtain estimates of the effects of advertising as the basis for its advertising appropriation decisions, a company has available a number of market research methods. The problem of which criterion of effectiveness to use has already been discussed. The experimental method of changing the level of advertising among various local markets for the observation period has been used and seems to hold considerable promise in instances where buyers are numerous, such as characterizes many consumer markets. The sales effects of the given appropriation can be measured by a retail audit or consumer panel if the company's own sales records do not suffice; usually when a manufacturer sells through a middleman, the manufacturer's sales records do not suffice since changes in inventories in the distribution channel destroy any dependable relation between the manufacturer's sales and the consumer's purchases of his brand. Even shipments to a company's own dealers are sluggish indicators, again, because of inventory changes.

Observation suggests that opportunities to evaluate the effects of advertising are often passed over. For example, in the geographic allocation of the advertising expenditures, it must often happen, just by accident, that intermarket differences occur in the relation of expenditures to some measure of market potential. If satisfactory methods of measuring changes in sales are available, careful analysis of these differences as they take place might yield extremely useful information over a period of time.

If the advertising-sales relation for a company's product can be determined empirically, the rest of the incremental method is relatively simple. Estimates of nonadvertising variable cost are obtained and shown as *VC* in Figure 65. Total variable cost (*TVC*) in Figure 65 is the advertising-sales relation (*DR*) from Figure 63, which is the various volumes of sales that would result from the respective advertising expenditures, added to the nonadvertising variable cost (*VC*). *TR* is the total revenue that would accrue with various sales volumes. This analysis assumes a given price. According to the short-run optimizing analysis explained in Chapter 7, a line drawn parallel to the

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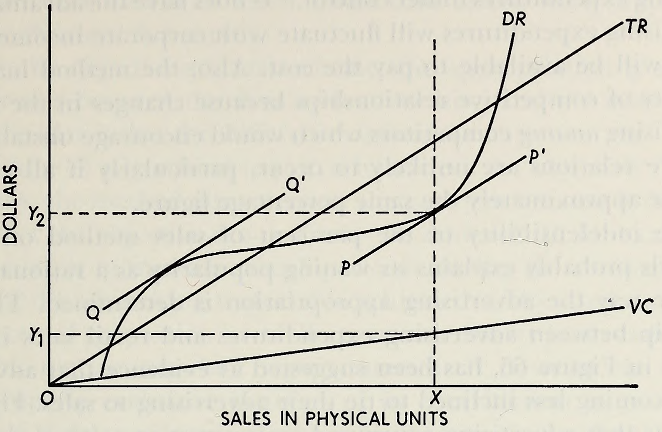
[27] Lester G. Telser, "Advertising and Cigarettes," *Journal of Political Economy,* LXX (1962), 483.

FIGURE 65

THE OPTIMUM ADVERTISING APPROPRIATION



total revenue relation (*TR*) and tangent to the combined advertising-sales relation and nonadvertising variable cost (*TVC*) indicates the level of advertising that will yield the optimum contribution to profit. The tangent line is shown as *PP′*. Another point of tangency that would be parallel with total revenue is shown by the line *QQ′*, but it is a minimum profit position. A little reflection will suggest that at the level of advertising where *QQ′* is tangent to *TVC*, the combined cost of advertising and nonadvertising variable cost (*TVC*) is greater than the sales revenue (*TR*) that would accrue, and thus, it would be more profitable for the company to spend no money for advertising. The optimum advertising appropriation is Y_1Y_2 shown in dollars on the vertical axis. Either a smaller or larger expenditure would contribute less to profits.

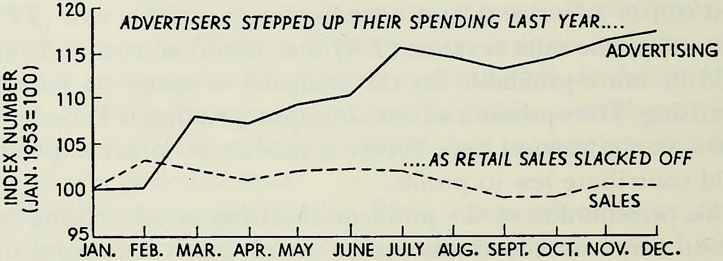
This presentation of the problem of setting an advertising appropriation may seem too abstract to be useful, but it does point up the questions that must be answered if appropriation decisions are to be made rationally and if the advertising is expected primarily to have a short-run effect. A rational decision requires that the effect of the expenditure be known in profit terms.

Per Cent-of-Sales Method. The per cent-of-sales method is widely used. It consists in applying some fixed percentage to anticipated sales for the budget period, such as a year. In effect, the method results in sales determining advertising. This is difficult to justify on a logical basis since the purpose of advertising expenditure is to influence sales. The popularity of the method is probably due to the fact that little is known objectively about the effects of advertising; therefore, the method provides a means by which top management can keep advertising expenditures under control.[28] It does have the advantage that advertising expenditures will fluctuate with corporate income so that funds will be available to pay the cost. Also, the method makes for stability of competitive relationships because changes in the level of advertising *among* competitors which would encourage unstable competitive relations are unlikely to occur, particularly if all competitors use approximately the same percentage figure.

The indefensibility of the per cent–of–sales method on logical grounds probably explains its waning popularity as a rationalization for the way the advertising appropriation is determined. The relationship between advertising expenditures and retail sales in 1954, shown in Figure 66, has been suggested as evidence that advertisers are becoming less inclined to tie their advertising to sales. Figure 66 suggests that advertising continued to increase in spite of declining retail sales. This evidence is no more than suggestive, however, because aggregate data on the volume of advertising are incomplete. Also, advertising schedules are based on expected rather than actual sales. Finally, it may be that there is a secularly increasing ratio of advertising to sales as suggested by the evidence that between 1950 and 1960 advertising appeared to be an increasing proportion of Gross National Product.[29]

FIGURE 66

Relation between Advertising and Sales when Sales Declined



——— Data: McCann-Erickson, Inc.—*Printers' Ink.*
. . . Data: Dept. of Commerce.
Source: *Business Week,* February 13, 1954, p. 42.

Objective-and-Task Method. An approach that is believed to be more common than per cent–of–sales is the objective-and-task method.

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[28] E. S. Mason, "Various Views of the Monopoly Problem," *Review of Economics and Statistics,* XXXI (1949), 104–6. A similar view has been expressed by Lewis, *op. cit.*

[29] *Advertising Age,* January 15, 1963, p. 6.

After a survey of its members, the Association of National Advertisers, for example, concluded that 40 per cent used this method in 1934 and 75 per cent used it in 1943. These conclusions were supported by a later *Printers' Ink* survey.

Under the objective-and-task scheme, the appropriation is set by the difference between the sales with advertising and the sales without it. The idea is that this difference defines the objective; the "task" is the volume of advertising required to achieve the objective. Stated in this way, the method assumes away the problem because it doesn't ask whether the objective can profitably be achieved. If, for example, the objective is to increase sales 5 per cent during the coming year, the cost of the advertising required to achieve this objective may well be so far out of proportion to its effect on sales that its profit contribution to the company may be a negative amount. If, however, the objective is properly evaluated in terms of its contribution to company profit, and if the conclusions are then used to set the level of the appropriation, the objective-and-task method can be useful. Considered from this standpoint, however, the method is nothing more than a statement of the incremental approach with which we began the discussion on the methods of determining the advertising appropriation.

SELECTION OF ADVERTISING MEDIA

Selecting the appropriate media constitutes one of the major advertising decisions. The more common types of advertising media are newspapers, business papers, magazines, television, radio, direct mail, car cards, billboards, posters, and point-of-purchase display. An indication of the relative importance of some of the advertising types was shown in the analysis of the ten largest national advertising budgets (Table 25). One of the significant developments in use of advertising media has been the growth of television and the decline of radio, although more recently radio has begun to increase as shown in Table 29 which presents total estimated advertising by media for selected years.

Although the selection of media, the first of the "advertising-allocation" decisions, will be dealt with as though allocations to media could be made independent of allocations of the appropriation over time and to specific message, this is clearly not possible in fact. For example, if it is desired that advertising appear weekly, monthly magazines are automatically eliminated as possible media, irrespec-

TABLE 29

How Advertising Expenditures Were Divided among Media, 1940–61

(In Millions)

	1940	1945	1950	1955	1961	1961 Share
Newspapers	$ 815	$ 920	$2,000	$3,000	$ 3,600	30.6%
Magazines	200	375	535	765	955	8.1
Radio	215	425	605	545	695	5.9
Television	....	....	170	1,000	1,600	13.6
Direct mail	335	290	800	1,300	1,900	15.8
Business papers	75	205	250	445	580	4.9
Outdoor	45	70	140	190	180	1.5
Other	400	585	1,100	1,800	2,300	19.6
Total	$2,000	$2,800	$5,700	$9,100	$11,800	100 %

Source: *Advertising Age,* January 15, 1963, p. 8.

tive of their economy. However, a particular combination of four monthly magazines could yield a weekly impact. Likewise it is often asserted without evidence that an advertising message of considerable blatancy would hardly "fit" the staid *Fortune,* for example. For the sake of clarity, it will be assumed that these interrelationships do not exist among the various kinds of advertising allocation decisions, except for the relation between media allocation and geographic allocation, which is discussed next.

Currently, a number of attempts are being made to use mathematical programming in making the media decision. Perhaps the greatest contribution of these attempts so far has been to indicate the inadequacy of the available data about the effect of media upon buyer behavior, but this is an important first step to improved media allocation.

Geographic Allocation. Media selection and the geographic allocation of advertising are so intimately related that it is impossible to avoid some comments on their relationship. In practice the two decisions are made more or less simultaneously. A measure of geographic demand, or a market potential as it is usually called, is often used in selecting the media for a given area. Measures of market potentials—*Sales Management's* Index of Buying Power and the Standard Industrial Classification method—were described in Chapter 8. There are other possible measures. A mathematical method of geographically allocating promotion expenditures is presented in the next chapter in connection with the geographic allocation of personal-selling effort. The method applies just as well to advertising as it does to personal selling.

Qualitative Criteria for Selecting Media

A number of common-sense criteria can aid in reducing media selection to a more manageable problem.[30] One criterion is the character of the company's distribution. Media should be confined to the geographic area that the company has selected as its market. Another criterion is the nature of the market. Media that reach potential customers are obviously desired. If the buyers of the product can be characterized by certain demographic qualities, such as a certain age or sex, which is seldom wholly possible, then media must reach the people with these characteristics. Geographic allocation presents an analogous dimension. A third criterion is that the medium should be suitable for the message. It is believed with some supporting evidence that some media are more appropriate for certain advertising messages than others. Print media illustrate this; the editorial aspects of the magazine are thought to make a difference in how buyers respond to the advertising transmitted by that magazine.[31] A fourth criterion is the size of the appropriation. A certain minimum outlay may be required to make economical use of some media. This is particularly true of television but applies to most media to a greater or lesser extent.

Quantitative Criteria for Selecting Media

At the heart of the media selection problem is the criterion of advertising effectiveness. As these methods for selecting media will illustrate, the criterion in practice is usually not even sales, much less, profit. Insofar as sales can be used as a measure, the short-run optimizing analysis appears to be appropriate for the media decision, although a firm answer awaits fundamental research. It could be that some media have a markedly different effect upon the amount of learning; if so, long-run analysis is essential.

Incremental Method. With a given advertising appropriation, the incremental method of selecting media results in using the medium, or usually combination of media, that will make the greatest contribution to company profit. Its application requires estimates of cost and effects on sales.

An analysis of four magazines (A, B, C, and D) illustrates the incremental method and some of the problems encountered in applying it.[32] First, magazine readership was used as a measure of effectiveness, but later this was converted to advertisement "rememberers" because it was felt that "rememberers" were more closely related to sales. Additional readers can be obtained by either or both of two methods: (1) by using additional magazines, or (2) by using additional issues of a given magazine. From an analysis of the readership of the four magazines, the relative effectiveness of the two methods of securing additional readers was estimated. These estimates of effectiveness required eliminating the "duplication" of readership that resulted when more than one magazine was used—some readers saw more than one magazine. For example, in 1947 the combined audience (readership) of *Life* and *Collier's* was 37,100,000, but the actual combined audience was only 31,350,000. The difference between the two figures is the duplication of readership. It was also necessary to provide for audience "turnover," which arises because there will be varying degrees of duplication of readership in a sequence of issues of a given magazine. In radio advertising, for example, a program that had eight million listeners for each broadcast, or 32 million total listeners for the period, had only 20 million *different* listeners in four broadcasts —12 million were duplications. These two corrections provided an "unduplicated audience."

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[30] Leo Bogart, "Media Research: A Tool for Effective Advertising," *Journal of Marketing,* XX (1955–56), 347–55; and James D. Scott, *Advertising: Principles and Problems* (New York: Prentice-Hall, Inc., 1953), pp. 526–48.

[31] See *A Measurement of Advertising Effectiveness: The Influence of Audience Selectivity and Editorial Environment* (New York: McCall Corp., 1962).

Figure 67 suggests a method of attack for determining the consequences of different courses of action: adding more magazines and/or more issues. "Base audience" is the unduplicated readership for the given magazine. For example, on the bottom axis of Figure 67 is the number of magazines; taking "1" and reading upward, it can be seen that an additional issue of a given magazine would add approximately 30 per cent in readership (from 1.00 to approximately 1.30). Four issues would add 64 per cent. The addition of a fourth issue of all four magazines is much less effective—Figure 67 indicates that something less than 5 per cent of unduplicated readership would result.

By using the Starch reports referred to earlier in the chapter, magazine "readership" was converted to advertisement "rememberers." Obviously, many readers of a magazine may not recall seeing a given advertisement in that magazine. According to Starch, for a reader to be classed as a "rememberer" of an advertisement, he is required to remember five advertisements from the given magazine by aided recall.

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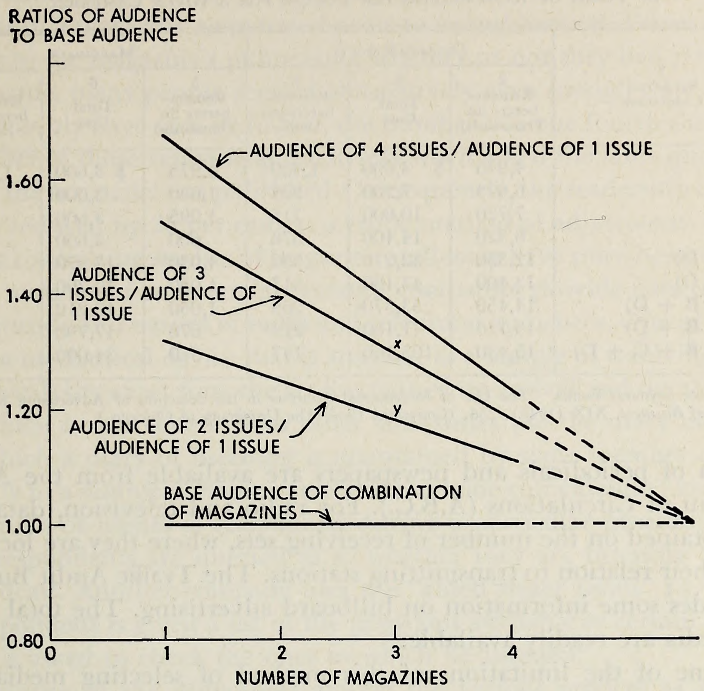
[32] Seymour Banks, "The Use of Incremental Analysis in the Selection of Advertising Media," *Journal of Business*, XIX (1946), 232–43.

FIGURE 67

Audience Added by Magazines and/or Issues



Source: Seymour Banks, "The Use of Incremental Analysis in the Selection of Advertising Media," *Journal of Business,* XIX (1946), Figure 1, 235. (Copyright 1946, The University of Chicago.)

The cost of the magazines was incorporated to give the results shown in Table 30. This step broadens the problem by casting it in terms of how much money should be spent rather than how is the best way to spend a given amount of money. The cost information was obtained from *Standard Rate and Data Service,* which publishes information about various media. By assuming a relationship between "rememberers" and sales of a product brand and then by introducing the price of the product and nonadvertising variable cost into the results of the media analysis shown in Column 7 of Table 30, an optimum decision could be approximated. The reader should attempt this as an interesting and useful exercise.

Media Circulation per Dollar as a Method. One of the easiest but crudest measures of advertising effectiveness is "media circulation in dollars." For newspapers and periodicals, circulation is merely the number of copies placed in someone's hands; for radio and television it is the number of receiving sets. Dependable measures of the circu-

TABLE 30

INCREMENTAL ANALYSIS OF OPTIMUM RESULTS OF CAMPAIGNS IN TERMS OF REMEMBERERS PER DOLLAR FOR A GIVEN CAMPAIGN

1 Selected Campaigns	Optimum Results			Marginals		
	2 Rememberers (in Thousands)	3 Total Cost	4 Rememberers per Dollar	5 Rememberers (in Thousands)	6 Total Cost	7 Rememberers per Dollar
1 × D	4,975	$ 3,600	1,380	4,975	$ 3,600	1,380
2 × D	6,625	7,200	921	1,650	3,600	458
3 × D	7,720	10,800	715	1,095	3,600	304
4 × D	8,320	14,400	578	600	3,600	167
3(A + D)	12,350	32,270	392	4,030	17,970	224
4(A + D)	13,400	43,160	317	1,050	10,790	97
3(A + B + D)	14,450	53,370	269	1,050	10,210	103
4(A + B + D)	15,120	71,160	213	670	17,790	38
4(A + B + C + D)	15,430	105,160	147	310	34,000	9

Source: Seymour Banks, "The Use of Incremental Analysis in the Selection of Advertising Media," *Journal of Business,* XIX (1946), 238. (Copyright 1946, The University of Chicago.)

lation of periodicals and newspapers are avaliable from the Audit Bureau of Circulations (A.B.C.). For radio and television, data can be obtained on the number of receiving sets, where they are located, and their relation to transmitting stations. The Traffic Audit Bureau provides some information on billboard advertising. The total costs of media are readily available.

Some of the limitations of this method of selecting media are obvious. The fact that a subscriber receives a magazine suggests little if anything about the fact that he reads it, or that it is read by other members of his family who may influence the purchase decision. Also, the extent to which the magazine is passed on to others outside the family can make considerable difference in actual readership, and this is not known.

Media Audience per Dollar as a Method. A more refined measure than media circulation in dollars is "media audience," which is the number of people who read a newspaper or magazine, listen to a radio program, or view a television program. The method consists of selecting media in such a way that the maximum number of readers, viewers, or listeners per dollar is obtained.

In 1934, a study was made in which the number of thumbprints on a sample of copies of *Time* was counted; it was concluded that 326 people read each copy of a single issue. The measurement of magazine audiences was pioneered, however, by *Life* in the magazine's first report, in 1938, of its continuing study of magazine audiences on four leading weekly magazines. The measure of readership, based on a sample, was the "inlooker"—anyone who had looked into a magazine was considered a "reader." It was suspected that many people who said they had "read" a magazine had not in fact, and as a check, copies of a magazine were tested prior to its publication. When asked prior to the magazine's publication whether or not they had read the magazine, many people replied affirmatively even though they could not possibly have seen it. In fact, the number was one fourth the total number of those replying affirmatively when asked the same question after the magazine was published. Consequently, the readership claims were reduced by 25 per cent as a crude method of adjustment. Many other continuing studies of magazine audiences have since been made.

A number of commercial research companies provide data on the magnitude and nature of radio and television audiences. One of them uses a mechanical device that is attached to a sample of receiving sets. It records the exact time the set was turned on and off and the stations to which it was tuned. Two other companies use the diary method in which a diary of listening is maintained by some member of the family in a sample of homes. In the "telephone-coincidental" method, a sample of homes is telephoned during a particular broadcast and the respondents are queried as to whether they are listening to the broadcast. Another company uses the "aided roster recall" in which a respondent is given a list of the programs available at certain hours and is asked to check the ones to which he listened.

Because of the differences among the various services as to the estimates of the number of listeners and because of the big stakes involved, the Advertising Research Foundation appointed a committee to evaluate the services.[33] The committee's report, released at the end of 1954, created a furor in the advertising industry because of its criticism of the current methods, but the report apparently has had little effect on the way the commercial rating services evaluate broadcast audiences.[34] The birth of commercial television in Britain in 1956 raised similar questions there. When asked to measure the London audience, British Attwood came up with 169,000; Neilsen, 188,000; Gallup, 370,000. One British television executive commented acidly, "And my window cleaner says over a million."[35]

The basic problem of measuring media audience is not so much the sampling reliability of the measures but that the various services are measuring essentially different things. For example, one method uses "television sets tuned to a particular station" irrespective of whether anyone is actually viewing the set. The diary method attempts to measure actual viewers, and viewers' reports on their viewing habits are probably subject to significant recording errors. Also, in the case of television ratings, recent congressional hearings have pointed up the inadequacy of some of the field work.

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[33] For a brief, simple comparison of the services, see "The Rating Services: How They Look, How They Work, What They Mean," *Advertising Age,* November 14, 1955, pp. 66–69.

[34] *Advertising Age,* December 26, 1955, p. 1 ff.

[35] *Advertising Age,* October 31, 1955, pp. 3 ff.

Comparison of media audiences is difficult because of their qualitative differences such as sex, age, income, education, race, and their attitude toward the media. Comparison of media audiences also encounters additional problems. For example, there are only limited data on the size of newspaper audiences, and the measurement of broadcast audiences is by no means perfect, as the previous discussion of television indicates.

Advertising Audience per Dollar as a Method. The term "advertising audience" refers, for example, to the readers of a specific advertisement in a specific medium as contrasted with media audience or media circulation. This constitutes the nearest quantitative approach to the evaluation of advertising media that is used considerably in practice.

The Continuing Study of Transportation Advertising (car cards), published in 1944, is said to have been "the first accurate appraisal of the advertising audiences of a medium."[36] Since then, much more work has been done on other printed media, but it is far from providing a complete coverage. One of the serious limitations of the broadcast audience measurements is that the urban market is more adequately evaluated than the rural market.

TEMPORAL ALLOCATION OF ADVERTISING

Another of the basic advertising decisions pertains to the proper timing of advertising. The effect of the business cycle on advertising has already been referred to, but there is another side to this problem that may have significance in the future. It has been suggested that advertising may be of some contracyclical importance. Union contracts calling for the guaranteed annual wage may stimulate management to find methods of stabilizing sales in order to avoid the financially heavy burden of worker layoffs. The problem is important enough in terms of both profit and public relations to justify considerable research.

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[36] Darrell B. Lucas and Steuart H. Britt, *Advertising Psychology and Research* (New York: McGraw-Hill Book Co., Inc., 1950), p. 591.

Management often faces the question of when to begin its advertising to meet an essentially seasonal demand. A study of *Family Circle Magazine* readers conducted by a consulting firm revealed that women were thinking of seasonal purchases considerably in advance of the particular season. The firm concluded that advertisers were beginning their seasonal advertising too late. The fur-coat industry, which begins to advertise in August, is an example of an industry which advertises well in advance of the time when the product will be used.

The problem of timing is particularly acute with respect to new products: Should the advertising begin before the product appears on the market, at the same time, or later?

The expected timing of competitors' advertising is a relevant consideration in deciding upon the allocation of advertising over time.

Finally, there are the questions of (1) how often should advertising be run and (2) should it be at regular or irregular intervals? In an attempt to provide evidence for answering the first question, the effect of advertising on the sales of a consumers' drug product has been analyzed.[37] The data were obtained in 1943 from an Industrial Surveys consumer panel (now known as Market Research Corporation of America) which consisted of roughly 2,000 families. It was found that the number of exposures to an advertisment per family during the six-month period varied all of the way from none to sixteen, with an average of seven exposures per family. Some of the conclusions are shown in Figure 68. Each point on the family total revenue curve in Figure 68 represents family purchasing when other factors are held constant, and the shape of the curve shows the effect of diminishing returns. The analysis was not carried to the point of incorporating the actual incremental cost, but to do so would have been a relatively simple step. When only the incremental advertising cost was inserted into the analysis, the optimum number of exposures per family was 12, but this conclusion overstates the case because nonadvertising incremental costs were omitted.

DESIGN OF MESSAGE

"Message" is used here to describe the whole advertisement, which in printed media includes both the printed copy and the artwork. In telecasting it refers to both the picture and the sound. In practice a distinction is sometimes made between message content and message presentation since the former is often provided by the client and the latter by the advertising agency. Content has to do with the ideas underlying the ad, and presentation has to do with the form in which these ideas are presented, for example, copy and artwork.

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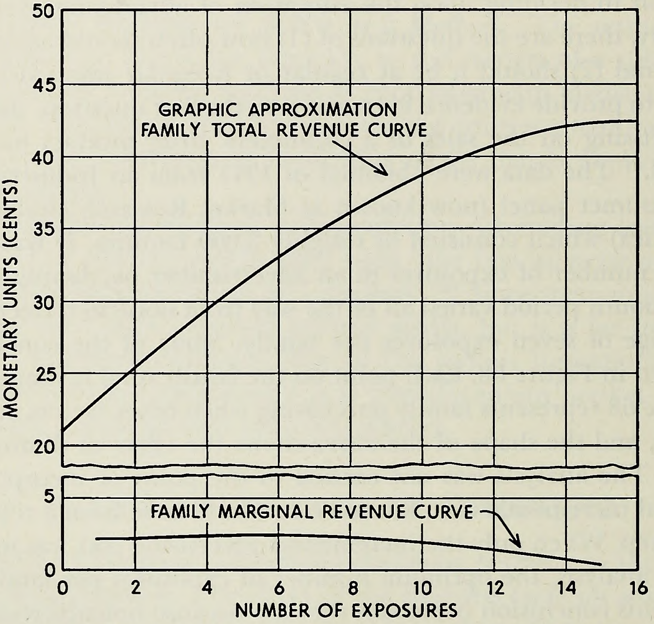
[37] Harry V. Roberts, "The Measurement of Advertising Results," *Journal of Business*, XX (1947), 131–45. Although it deals mainly with the frequency of advertising, the article also discusses the more general problem of measuring the effects of advertising.

The function of the message in a general sense is to translate the qualities of a brand into the goals of a buyer so that he will view the brand as an aid rather than a barrier to achieving his goals. The cost of a brand provides a barrier to goal achievement because its purchase results in less funds for other purchases and, also, purchasing requires effort.

FIGURE 68

"Family" Opportunity for Exposure to Advertising



Source: Harry V. Roberts, "The Measurement of Advertising Results," *Journal of Business,* XX (1947), 142. (Copyright 1947, The University of Chicago.)

The buyer is an imperfect machine for receiving information. The advertiser's message competes with messages from many other sources. He receives chiefly what he wants to receive—he is "selective." He may use different symbols to communicate than does the advertiser. Finally, he forgets. There is often a considerable lag between the time he sees the ad and the time of purchase. This lag intensifies the problem of memory.

It is doubtful at this time, however, whether many useful generalizations can be made about the appropriate way to prepare an advertisement. In terms of the buyer behavior model, advertising is the message which is the stimulus, the pattern of cues, and for which all other features of advertising merely constitute a vehicle. The message can affect predisposition (*P*) directly in Phase 1 of the learning process, which can be shown by changes in expressed attitudes toward the brand. A striking feature of research in attitude change through communication has been that it is much easier to change attitudes in the laboratory than in the naturalistic setting of the real world. This is shown when the voting studies are compared with laboratory studies.[38] Also, the effect of the message upon predisposition would in general be expected to be smaller than the effect of reinforcement resulting from experience with the brand. The message can influence the goals (*D*) but the identification of goals is not easy; they can only be inferred. The buyer may not know (unable to verbalize) his goals or, if he knows them, he may not be willing to voice them (socially unacceptable) in the interaction situation represented in interviewing. The message may be able to make the incentive object (*K*) appear larger. Finally, the message can function in reducing post-decision dissonance.

Advertising agencies have "creative directors" who are responsible for the message phase of the advertising function; the term "creative" suggests the nature of the task. One of the most popular topics of discussion in advertising circles is the relation between the creative people and the market research directors about the extent to which research can be an aid in accomplishing the creative task. The issue has probably been sharpened by the increased emphasis upon motivation research. The creative man's view of research often is "research never wrote an ad." The common research view is, however, that motivation research can provide the creative man with greater insights into human behavior, and this will aid him in preparing a more effective advertising message.

Considerable marketing research has been devoted to testing the effectiveness of the message, but the research has two limitations. First, testing is confined to the available alternative messages and therefore does not permit the development of an optimum message. Second, and considerably more important, is that nonsales criteria are used, such as the buyer's awareness of the ad—whether he remembers having seen the ad, rather than whether he bought the item. Another nonsales criterion is his attitude toward the ad—whether he thinks it is a "good ad," or whether it would "make him buy." Additional research is needed to establish the extent of the relationship between these characteristics of a message and its effect on purchasing behavior. Since the relationship between attitude toward the brand and purchasing behavior is far from perfect as indicated by evidence cited in Chapter 3, it seems reasonable to expect quite discrepant results between awareness of the ad or attitude toward the ad and buying behavior.

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[38] See Carl I. Hovland, "Reconciling Conflicting Results Derived from Experimental and Survey Studies of Attitude Change," *The American Psychologist*, XIV (1959), 8–17. The references in this article represent a splendid entry into the great amount of literature on attitude change.

Tests may be applied to a whole advertisement or only to parts of the advertisement. One of the major questions in printed media, for example, is whether to use only "black and white" or to use another color, which will add significantly to the cost.[39] "Readability" tests may be applied to the printed copy to evaluate its effectiveness.[40]

There are four chief methods of testing the effectiveness of a message:[41] (1) *Opinion ratings* consist simply in asking people their opinion about an advertisement. It is one of the simplest methods to use and is generally used early in the planning stage before heavy financial commitments are made. (2) The *concurrent method* tests the ad when it appears. There are a number of variations of the concurrent method, such as personal observation of readers or viewers. Another version is the diary method, in which a sample of people are asked to maintain a record of their viewing or listening habits. (3) Then there are *memory tests,* which fall into two categories, recall and recognition. The recall can be "aided" or "unaided." An unaided recall is illustrated by an interview question, "What advertisements have you noticed recently?" Aided recall is illustrated by the question, "Do you remember the floor wax advertisement?" This gives the respondent a suggestion. The recognition variety of the memory tests, which is probably the most widely used of copy tests, is illustrated by the "readership survey." It consists in thumbing through a magazine with a person known to have read it and asking him which ads he can recognize as having seen or read. (4) Finally, there are effectiveness tests which are based on *inquiries* and *sales.* Return coupons for free information illustrate the inquiry type. The sales tests are usually called sales-area or market tests.

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[39] As an example, see J. William Dunlap, "The Effect of Color in Direct Mail Advertising," *Journal of Applied Psychology,* XXXIV (1950), 280–81.

[40] Patricia M. Hayes, James J. Jenkins, and Bradley J. Walker, "Reliability of the Flesch Readability Formulas," *loc. cit.,* 22–26.

[41] Lucas and Britt, *op. cit.,* chaps, xiv–xix.

All four methods have certain limitations, but if they are continuously and imaginatively applied, they can provide a background of information that perhaps can improve advertising decisions. At least, management thinks these methods improve advertising, as indicated by the large sums expended in obtaining these data.

If decisions about the message are to be made in profit terms, cost data are essential as well as the demand data which were discussed above. The amount of creative talent, artwork, the extent of different colors, etc., all make a difference in cost. In practice, the message tends to be viewed as a short-run decision. Whether it has long-run elements which would justify the use of the long-run optimizing analysis is not known. Until better means are found for measuring the effect of the message upon purchasing behavior, the type of analysis which is appropriate for the decision will remain an unanswered question.

USE OF CO-OPERATIVE ADVERTISING

An advertising decision of increasing importance among some companies using nondirect marketing channels has to do with co-operative advertising. Actually, both horizontal and vertical co-operative arrangements are possible, but here only the vertical type will be discussed. In the vertical type of arrangement the manufacturer and the middleman share the cost of advertising in the middleman's market area. There is a general belief that the practice of co-operative advertising has increased historically, but conclusive evidence is lacking. However, in 1950 the Association of National Advertisers concluded from a survey of its members that the median expenditure of the 79 companies using co-operative advertising was 15 per cent of the total budget. By 1954 the number of companies had increased to 105 and the median expenditure was 18 per cent.[42]

The manufacturer may advertise in co-operation with both wholesalers and retailers, but more often it is the latter with whom he co-operates. Retailer co-operative arrangements may be on a 50-50 basis, the manufacturer paying one half and the retailer the other half.

The reasons advanced by national advertisers for using co-operative advertising are that it stimulates dealers to start advertising, causes other dealers to do more advertising, stimulates dealers' interest and good will, tells customers where to buy, supports national advertising, helps meet competition, and helps get local advertising media rates, which are cheaper than national rates.

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[42] *Advertising Age,* August 6, 1956, p. 73.

It is sometimes said that one of the difficult features of planning co-operative advertising is to estimate the amount that will actually be spent because for the dealers, co-operative advertising is optional rather than compulsory. The survey mentioned previously suggests that this problem is not as great as it is often supposed. Seventy-five per cent of the users of co-operative advertising stated that 90 per cent or more of the appropriated funds were spent.[43]

In addition, the Federal Trade Commission is raising serious questions about the legality of many co-operative advertising allowances granted by manufacturers to retailers. It will be recalled from Chapter 9 that under the Robinson-Patman Act advertising allowances must be "proportionately equal." The F.T.C. doubts that this is true of many of the allowances now being granted by manufacturers, and it has been predicted that efforts will be made to rectify these alleged violations.[44]

SUMMARY

Advertising and personal selling can be viewed as alternative means of accomplishing the end of providing market information to buyers. Although both perform other functions, their basic justification in a global sense is the dissemination of information. For the purposes of management decision, however, it is more helpful to consider the problem in terms of the buyer behavior model.

Of the major advertising decisions, probably less is known about setting the appropriation than about selecting media and message. Practitioners feel that fruitful research can be applied to media and to message without dealing directly with their effects on sales. Instead of sales, some intermediate or surrogate measure of effectiveness, such as readership, can be used. Also, the measurement is relative, that is Media A versus Media B.

Top management usually makes the appropriation decision, for which there is the least rational basis. This state of affairs is probably one source of the skepticism top management often exhibits toward advertising.

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[43] *Ibid.*

[44] *Business Week*, February 23, 1963, pp. 86–88.

Continuous research on a specific company's advertising problems will eventually lead to the development of knowledge that can contribute to its advertising effectiveness. Planned experiments appear particularly promising for some products. Greater knowledge about the general problem of communication and behavior change can strengthen the research.

Legal considerations typically do not loom as important in advertising as in pricing decisions, except among alcoholic beverages. Perhaps the two major areas where the law is significant are truthfulness in advertising and promotional allowances, both of which were discussed in Chapter 9.

Chapter
14

PROMOTION DECISIONS—PERSONAL SELLING

Personal selling has an unusual feature—in most companies only limited co-operation exists between the personnel department and the sales manager even though both are concerned with selecting and training people. This situation suggests something about the peculiar nature of the selling job. C. L. Shartle, formerly Chief of the Division of Occupational Analysis, War Manpower Commission, has stated, "We have studied something like 20,000 occupations and we find that the difficulty encountered in devising improved selection techniques for saleswork is probably not equaled in any other group of occupations."[1] There are few areas of human activity about which so much is written and yet so little is really known as the task of personal selling. "Nearly a million copies of books on selling are marketed in the United States each year."[2]

SIZE OF PERSONAL SELLING APPROPRIATION

The part that selling is expected to play in the total marketing plan is the starting point for deciding how much money should be devoted to selling—the personal selling appropriation. To suggest what this part should be, in turn, requires an understanding of the function that selling effort serves in influencing sales.

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[1] C. L. Shartle, "Discussion" (Marketing Series No. 39) (New York: American Management Association, 1940), p. 9. Selection techniques probably have improved since this statement was made a number of years ago.

[2] Daniel Seligman, "The Latest 'Secrets' of Selling," *Fortune,* June 1956, p. 123.

General Analysis

The analytic tools for gaining an understanding of this selling process are merely an extension of the interaction idea which was introduced in Chapter 3 in connection with the concept of social structure.[3] The basic idea in the following analysis is that two people will continue to interact as long as they find the relationship mutually satisfying. The analysis permits us to deal with both the "rational" and "irrational" aspects of the salesman-client relation instead of concentrating upon one aspect at the expense of the other and thereby giving a distorted view of the true nature of the relationship.

A salesman calls upon a buyer to sell him a product. During the interaction that ensues each can emit a type of behavior that is *rewarding*—reinforcing—to the other. The salesman provides the buyer with a product (and the necessary information about the product and its use) that the buyer needs. This satisfaction of the buyer's need is rewarding to the buyer. The buyer can reward the salesman by purchasing the product. In addition, each can reward the other by another type of behavior, that of providing *social approval.* To give social approval to a client means that the salesman indicates his high regard for the client by friendly greetings, warm conversation, praise, and the like.

From these ideas of reward and social approval certain general principles can be stated about the nature of the salesman-client relationship. These principles are largely extensions of the psychological and sociological principles from Chapters 3 and 4 when applied to the two-person interaction situation. (1) An interaction situation that was rewarding in the past will encourage future responses from the client or salesman to the extent that the new situation is *similar* to the previous one. This is, of course, a statement of the familiar generalization principle from Chapter 4 but applied to interaction. (2) Something can be said about the *amount* (quantity) of interaction: the more often, within a given period of time that one man's behavior (the salesman's) rewards the behavior of another man (the client), the more often the second person (the client) will exhibit that behavior. Correspondingly, if a man has learned to interact by being rewarded and then he no longer finds interaction rewarding, he will discontinue responding: the response is extinguished. (3) Also, something can be said about the value of the behavior: the more *valuable* a salesman's behavior is to the client, the more often the client will exhibit the behavior rewarded by the salesman. (4) Something can be said about *satiation,* that is, the case where a need is satisfied. The more often in the recent past that a man has received rewarding behavior from another, the less valuable an additional unit of that behavior is to him, although as we have seen earlier, secondary needs are not so inclined to satiation as are primary needs.

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[3] This analysis also contributes an understanding of the buyer's relations with nonsalesmen by elaborating upon the nature of interaction within any group.

Finally, over a long period of time a person develops standards about what is "fair" to expect from an interaction situation: how much rewarding behavior the client feels he should give the salesman in return for the rewarding behavior he receives from the salesman. This feeling can be called the sense of distributive justice—ideas about the "fair" allocation of rewards between two people in an interaction situation. When this sense of fairness is violated, the "injured" person may become angry and do things which may not be in his best interest. He may, for example, refuse to interact with the salesman even though it is profitable for him to do so. In other words, he may engage in irrational behavior. (5) The principle is: the more to a man's disadvantage the rule of *distributive justice* fails of realization, the more likely he is to display the emotional behavior called *anger.*[4]

There is, however, a cost—a punishment, a negative reinforcer—of the interactive behavior to each person who emits that behavior. ("Cost" is that punishment that the man cannot avoid if he is to continue to emit positively reinforced behavior.) One cost of this behavior, as discussed in Chapter 7, is the foregone opportunity to do something else. The salesman could have used his time in calling upon some other client, and the buyer forewent the opportunity to buy the product from another salesman. Thus, the more that a particular mode of interactive behavior *costs* a person, the less of the behavior he will exhibit. There is another cost, however; the behavior represented in giving social approval is costly to the salesman because to praise the buyer for his good judgment, splendid character, etc., has the effect of lowering the self-esteem of the salesman. Cost plays a critical role in the selling analysis because it encourages each person to emit some *other* behavior—to change his mode of interaction or to interact with someone else—and serves as an opposing force to the reward the buyer and salesman receive from their *current* behavior. Thus, extinction, satiation, and cost serve to encourage each man in the relationship to turn to some other behavior.

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[4] For a more elaborate statement of these principles and their empirical support, see George C. Homans, *Social Behavior: Its Elementary Forms* (New York: Harcourt, Brace & World, Inc., 1961).

The interaction situation can be considered in terms of profit: the reward from the interaction is a revenue; revenue minus cost is profit; and this relationship will continue as long as there is a profit to both parties. This has two implications for management. First, the salesman should be provided with everything feasible that can help him make a satisfying relationship with the buyer, e.g., a good product, training, etc. Second, to the extent the salesman is inclined to turn to another form of behavior—to stop calling on this buyer—the company needs to provide the salesman with offsetting effects so that he will continue the relationship with the buyer in spite of insufficient reward by the buyer. Some of these offsetting effects are higher salary, increased identification with company goals, training so that the salesman can interact more effectively, and assignment of the salesman's time so that he is specifically directed to call on this buyer.

The discussion so far has been in terms of a short interaction period, but in many sales situations the salesman-buyer relationship is a continuing relationship. The more social approval the client has received from the salesman, the less valuable becomes additional approval; and the more time the client has given the salesman, the more costly becomes additional time. Correspondingly for the salesman, the more time he has received from the client, the less useful becomes additional time; and the more approval he has given the client, the more costly becomes further confession of inferiority. Thus, in time, a point of equilibrium is reached in the relationship which continues until there is a change in the underlying conditions.

To understand the salesman-client relation, it may be helpful to separate the economic aspects of the relationship from the strictly social features. The salesman wishes to sell a product, and the buyer wishes to buy it. These can be called the economic features of the relationship. In addition, however, each of the participants place a value and cost upon the strictly social features. Each enjoys chatting with a "charming" person. The behavior relating to these features of the relationship can be called "sentiments" or expressions of different degrees of liking or social approval. The economic rewards can substitute for sentiments and vice versa. The distinction is perhaps most obvious with respect to industrial buyers whose personal goals may diverge considerably from those of the company for which he buys. The industrial purchaser buys products to meet the company's goal, but personally he enjoys his relations with salesmen to a greater or lesser extent over and above the salesman's capacity, or lack of it, to aid him in serving the company's goals. Even when consumers buy for their own use, for example, as contrasted with buying for the family, this distinction between economic rewards (and costs) and sentiments is relevant.

Influence Process

The salesman attempts to get more or less valuable reward—either in sentiment or economic activity—by changing his own behavior or by getting the buyer to change his. This way of viewing the salesman's influence suggests that it is possible for him to strive for reward from the buyer in the form of sentiments rather than economic behavior which is, of course, contrary to the company's interest.

The marketing literature tends to view interaction as a one-way relation in the case of a salesman (the salesman only influences the buyer), but to the extent the salesman is a feedback of information to his company, the two-way nature of the relation becomes directly significant to the buyer. The salesman can provide information on how the product does and does not meet the buyer's requirements. The company needs this information for its marketing decisions; the company will pay dearly to obtain it through market research. Also, the two-way nature of the salesman-buyer relation is indicated, as evidenced by well-documented studies of communication, by the fact that the buyer's attitudes are more favorable if he is given the opportunity to provide the information. There are problems connected with the salesman's role as a feedback, but that is a topic for Chapter 15. Finally, the possibility exists for the buyer to exert so much influence upon the salesman that he will be rendered less effective. One of the goals of selection, training, and supervision is to render the influence of the buyer on the salesman less significant.

It is helpful to think of this influence as occurring in one or more of the following ways: (1) through effects on goals; (2) through information about how the course of action (the purchase) will contribute to these goals; and (3) through the reduction of the anxiety (dissonance) attendant upon making a decision with seriously incomplete information.

The extent to which a buyer's goals are influenced by the salesman is not clear. The goals which are *applied* by a buyer in a specific purchase probably are affected. For example, by calling the buyer's attention to the idea that his brand has status implications, the salesman may cause the buyer to apply the status goal, which he would not have done otherwise. Here we are referring to immediate goals, or in terms of the means-end analysis of goals mentioned in Chapter 3—the lower part of the means-end structure. We would not expect the more basic goals of the buyer to be greatly influenced, although over a long period of interaction this might occur to a limited extent. If a buyer's goals are not clearly defined, they may be subject to influence. As often happens in industrial products where sales effort is the dominant marketing tool, the industrial buyer cannot be easily evaluated and therefore his goals are not as well defined. "Good performance" by the industrial buyer seems to a large extent, to be a matter of meeting the necessary time schedule of delivery and occasionally being able to show his boss that according to price, he has made a good buy. The larger the company, probably the less the industrial buyer tends to identify with his company goals, and consequently, the less his behavior tends to be consistent with those goals.

The second way in which sales influence occurs—the salesman communicates how his brand will contribute to the buyer's goals—is obvious. This is the function that we ordinarily think of as being served by the salesman, and its importance should not be underestimated. The influence of salesmen is particularly great in Phase 1 of the learning process where the buyer is seeking information primarily in terms of information cues. The "feedback" role of the salesman is most significant here in that the salesman can tell his company about the needs of his buyers which will enable the company to provide an alternative which will more nearly conform to their needs.

In Phase 2 of the learning process the salesman is primarily faced with a competitive problem. The buyer has selected a *few* sellers from whom to make his purchases, and the task of the salesman is to communicate the advantages of his brand. In Phase 3 the salesman's role is to trigger the purchase. This may well increase the amount the buyer takes from him, since the buyer has made up his mind that any one of a few suppliers will satisfy him and he takes the most convenient. Also, the salesman causes him to buy sooner than he probably would if left to purchase on his own. In a sense, the salesman thus performs the buyer's planning task for him. This triggering effect can be significant in industrial buying because if the buyer delays, time pressure, an exogenous variable, may cause him to buy "locally" even though this involves a less desirable (more costly) purchase.

In terms of the behavioral equation ($B = P \times D \times K \times V$), salesman can exert influence through D as indicated above, but, in addition, he presumably can affect *P, K,* and *V*. *P* can probably be affected directly, but the greatest effect will be the reinforcement from using the brand. By discussing the merits of the brand, the salesman can cause it to appear relatively better and thus affect *K*. Finally, the intensity of the salesman's effect can vary and thus make a difference in *V,* but it remains the task of research to tell us precisely how similar sales effort is to the stimuli that have been tested in the laboratory. Nonlinguistic cues, e.g., a gesture, play an important role in communicating in interaction situations.

The reduction of both pre- and post-decision anxiety or dissonance is the third function of a salesman. The buyer is seldom or never absolutely sure he is making or has made the best purchase, and the salesman can exert influence by giving the buyer supporting information that will enable him to rationalize his decision. This can occur, for example, in industrial purchasing because the feedback on the product's performance from the user in the plant to the buyer is very limited. About the only time that an industrial buyer receives information from the plant is when a fairly serious mistake has been made. The "good" and "average" purchases are seldom commented upon by the user. In estimating the extent of the salesman's role in reducing dissonance, it is helpful to think of the particular situation as being one of the following four cases: (1) an established product—an ongoing salesman-client relation, (2) an established product—a new salesman-client relation, (3) a new product—an ongoing salesman-client relation, and (4) a new product—a new salesman-client relation. In the first case, unless the market is unstable, the buyer tends toward Automatic Response Behavior and thus experiences little if any dissonance, but insofar as he does, the salesman would presumably be effective because he would be trusted by the client. In this case it would seem that the salesman's function is largely to provide a triggering cue. In the second case, the salesman, being new, would presumably be less effective in reducing dissonance. In the third case, unless the buyer generalizes heavily from a previous product, he would experience dissonance, especially if it were an important product. Post-decision evaluation is difficult in this case. Also, the salesman would be capable of reducing dissonance because of his established relationship with the client. In the fourth case, the buyer would need dissonance reduction, but the salesman would be less capable of providing it.

Are some personalities more persuasive than others and some more belief suggests an affirmative answer. More will be said about this later in connection with selecting and training salesmen.

Measurement of Selling Effect

With this analysis of the sociopsychological nature of the selling function as a background, we can ask, "Is it possible to measure empirically the effect of selling effort in order to estimate quantitatively the optimum sales budget?" A large commercial printing company had not been growing as rapidly as the available demand in its area, in spite of the fact that its sales budget was larger than the average of its competitors. The company devoted $350,000 of its total sales appropriation of $500,000 to the salaries and expenses of 35 salesmen. Management felt that the fault lay in the lack of effectiveness of its sales force.

An experiment was devised wherein each of 18 of the company's salesmen were assigned 36 customers who were divided into three effort groups—high, medium, and low level.[5] The customers in the high-level group were to receive 16 hours of sales effort per month; those in the medium-level group, four hours; and those in the low-level group, one hour. Sales effort normally consisted of regular sales calls of about an hour's duration twice each month, entertainment at lunch or dinner, trouble shooting on customer printing jobs already in progress, advising the customer on layouts for new works, and planning the sales approach to the customer. Once an account had been assigned a given level of effort, it was planned to continue sales effort at that level for three months except in the face of some disaster to the customer, such as fire, bankruptcy, or strike. Table 31 shows the experiment as it was planned.

Each salesman's total of 36 customers was divided into the three groups as indicated: "high," 4; "medium," 8; "low," 24. The individual customers to be administered the increased sales effort were selected by the particular salesman subject to the approval of the sales manager. Actual levels of sales effort differed from planned levels because

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[5] Arthur A. Brown, Frank T. Hulswit, and John D. Kettelle, "A Study of Sales Operations," *Operations Research,* IV (1956), 296–308. The type of company given here is fictitious in order to protect the identity of the participating company. A study of how to develop a method of allocating salesmen geographically could be carried further to be used in establishing the optimum personal selling budget. See John F. Magee, "The Effect of Promotional Effort on Sales," *Journal of the Operations Research Society of America,* I (1952–53), 64–74. For a simpler but incomplete statement of the analysis, see John F. Magee, "Application of Operations Research to Marketing and Related Management Problems," *Journal of Marketing,* XVIII (1953–54), 361–69.

TABLE 31

INTENDED LEVELS OF SALES EFFORT

Level of Effort	Hours per Month	Customers per Salesman	Total Hours per Month
High	16	4	64
Medium	4	8	32
Low	1	24	24
All		36	120

Source: Arthur A. Brown, Frank T. Hulswit, and John D. Kettelle, "A Study of Sales Operations," *Operations Research,* IV (1956), Table II, 300.

it was not possible to predict precisely how many hours could be devoted to a customer. During the first month, an attempt was made with each customer to apply the planned effort; then the level of effort attained during the first month was applied for each of the three succeeding months.

Table 32 summarizes the results at the end of three months, after the level of actual sales effort had been determined for each customer.

TABLE 32

EFFECT OF SALES ON PURCHASES

Months Since Effort Increased	Proportion of Customers Increasing Their Purchases		
	Under 5 Hrs./Month Per Cent	5 to 9 Hrs./Month Per Cent	Over 9 Hrs./Month Per Cent
0	0	10	25
1	0	24	20
2	8	37	0

Source: Arthur A. Brown, Frank T. Hulswit, and John D. Kettelle, "A Study of Sales Operations," *Operations Research,* IV (1956), Table III, 301.

The "hours" indicated in the three column headings of Table 32, for example, "Under 5 Hrs./Month," represent *increases* over the number of hours that had been applied previously to each customer in a given level of effort. The figures in each of the three columns indicate the per cent of customers whose purchases had *increased* during the experiment. A buyer was shown as having increased his purchases only if they were above the previous level. If, for example, a buyer increased his purchases from $1,000 to $2,000 in a month, he was not counted as an "increase" again until his purchases exceeded $2,000. The conclusion is that purchases increased *as a result* of the increased sales effort, and that "5 to 9 hrs./month" of additional effort was the most effective amount of sales effort to apply, as indicated in Table 32 by the proportion of customers that increased their purchases from month to month as shown in Column 3 as compared with Columns 2 and 4. The original effort had been 2 hours per month, and when this is added to the optimum *increase* of 5 to 9 hours, the total hours are 7 to 11 hours per month.

These estimates of sales effectiveness can be combined with the cost of salesmen's salaries and expenses to arrive at an optimal total appropriation figure. As in advertising, the lack of estimates of personal-selling effectiveness has been the stumbling block to rational decisions on the size of the appropriation. Cost data, however, are usually more readily available in sales than in advertising because company records will sometimes reveal when and how often a salesman has called upon a particular customer, and perhaps even an estimate of how much time the salesman spent with the customer. It is difficult to generalize about whether the short- or long-run optimizing model is appropriate. Presumably to the extent that the market is stable and the buyers are fully learned (Automatic Response Behavior), the short-run model tends to be appropriate.

Once management has decided how much funds to devote to sales effort, it can do a number of things which presumably make a difference in the effectiveness of its sales force. First, the company can select its salesmen, providing the company has meaningful criteria so that prospective salesmen can be chosen according to their potentiality to perform in the sociopsychological situation just described. Second, the company can offer a certain pattern of training and supervision which will develop the salesman's potential shown during the selection processs. Third, it has long been the opinion that in terms of satisfying the company's goals, the method used to compensate salesmen will make a difference in their behavior. Fourth, a salesman can spend his time in a number of ways, and one action that management can usually take is to assign customers with high instead of low potential to the salesman as an aid to him in using his time most effectively. Finally, management evaluates the performance of a salesman in order to know what course of action should be followed to obtain the best possible performance from the salesman.

SELECTING SALESMEN

One of the most significant ways of lowering sales cost is obviously to select men who will be effective salesmen. Selection has received considerable attention by both the executive and the psychologist.[6] The most progressive current practice is to describe the job and from the job description to formulate the qualities required in a salesman to perform this job. Then, through the use of the personal-history statement, the personal interview, and psychological tests, people are selected who appear to possess these qualities.

Description of Sales Job

Emphasis is placed upon the job description in the belief that each company has a unique selling situation. The source of the job description is illustrated by the experience of Esso Standard Oil Company:

> Expert opinion was obtained from our top marketing management and from outside consultants in order to get a complete picture of their understanding of the General Salesman's job. Opinions were also obtained from 11 Division Managements and some 60 District Managements in the field. At this time, the relative importance of some 48 duties of the General Salesman was determined as well as opinions about how the best salesmen go about pursuing these duties. Finally a number of salesmen were directly observed in action during a typical day's work.[7]

Certain personnel techniques used in production, such as time and motion studies, are sometimes employed in describing the job.

Requirements of Sales Job

Esso's experience also provides a useful illustration of formulating job requirements from the results of the job description. From the various sources of information about the job characteristics, the following areas of investigation were identified:

1. General mental ability.
2. Good health and attitude toward health.
3. Degree of interest in selling.
4. Practical judgment in typical sales situations.
5. General attitude toward people and human relations.
6. Adaptability to daily change (flexibility).
7. Attitude toward childhood, family, past jobs, supervision, and controversial issues.
8. Leadership habits in common situations.
9. Planning and organizing ability (self-sufficiency).

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[6] For a summary and extensive bibliography, see Earle A. Cleveland, "Sales Personnel Research, 1935–1945: A Review," *Personnel Psychology,* I (1948), 211–55. For a highly useful and sobering review of the research in personnel psychology, see Mason Haire, "Psychological Problems Relevant to Business and Industry," *Psychological Bulletin,* LVI, (1959), 174–77.

[7] William W. Bryan, "A Program for Motivating Salesmen," *Advanced Management,* XX, No. 2 (1955), p. 18.

From these qualities, a test was constructed that involved 1,096 judgments by the subject and required six to seven hours for administration. The test was then administered to Esso's 328 general salesmen who had been evaluated by management and ranked accordingly. The completed tests were separated into two groups, those completed by the upper half of the men (best salesmen) and those completed by the lower half (poorest salesmen). From the answers given by the two groups, a test one third of the original length was constructed and used as a qualification questionnaire in selecting future salesmen.

Unfortunately, important information from the Esso experience is not given: How were the 328 General Salesmen ranked—what criterion did management use? This reaffirms the fact that throughout the area of personal selling some measure of performance is necessary, and to make this measure explicit avoids confusion. Second, did the use of the qualification questionnaire actually result in selecting more effective salesmen? Observation suggests that this step, the analysis of the results of the procedure, is all too often omitted. With a large and/or growing sales force requiring a significant number of additions to the force, the method can be validated by applying it to some recruits and not to others, and then comparing the performance of the two groups.

Tools for Selecting Salesmen

The analysis of the sales-job requirements in a company should provide a statement of the qualities that the three tools of selection should be able to identify and evaluate in prospective salesmen: personal-history statement, psychological tests, and interview.

Personal-History Statement. The application form, usually called the personal-history statement, is often the first step in screening unlikely candidates. An analysis of sales selection was carried out by the Tremco Manufacturing Company, which produces roofing and waterproofing materials and sells to buyers who are, generally, plant superintendents and contractors. The following items were included in the personal-history statement:

Age
Height
Marital status
Number of dependents
Average number of years in all previous jobs
Insurance carried
Amount of debts
Years of education
Number of clubs
Reason for leaving last regular job
Years in last job
Experience in maintenance
Average monthly earnings on last regular job

Earnings were used as the criterion of proficiency. Each of the 13 items were weighted by the responses of 48 salesmen whose earnings were available for a full year. For example, replies to the question "reason for leaving last regular job" were weighted as follows: still employed, 10; job discontinued, 7; to better self, 5; dismissed, 4; friction or other negative reasons, 2. A critical score, which is the dividing line between "good" and "bad" salesmen, was established at 62. "The experience of the company is that 70 per cent of those scoring above 62 are still working (after two years), while only 30 per cent of those scoring below 62 are still employed."[8]

Although this analysis suggests the way in which the personal-history statement can be used, it is generally agreed that the personal-history statement is inadequate by itself. It would seem, for example, that if the applicant knew his selection depended upon his replies he could fake appropriate answers. One reason for the success of the personal-history blank may be the possibility of using it to determine sources of conflict within the prospective salesman that will prevent him from adapting to sales work.[9] By having a psychologist design and analyze the personal-history statement, it may be possible to use it as a projective technique for evaluating personality characteristics.[10]

Psychological Tests. Psychological tests are widely used in the selection process.[11] In contemplating their use, however, it is wise to bear in mind the role of the measure of performance:

> Efforts to select personnel by psychological techniques will stand or fall according to whether a valid and reliable criterion can be found and accurately measured . . . That it (valid criterion) is frequently overlooked is nowhere more apparent than in articles, especially those appearing in the nonprofessional publications, concerning sales personnel research.[12]

Tests are designed to predict, but often it is not at all clear as to just what is being predicted.

In practice, psychological tests are justified on the principle that "at least they can do no harm." In other words, this says that there can never be a negative relation between the test results and on-the-job performance, a position which even the most naive would be unwilling to assume. From a careful gleaning of available studies, two psychologists found a positive relation between intelligence-test scores and job proficiency among "salesmen," but among "salesclerks" there was no conclusive evidence of a positive relation.[13] In this study, 185 comparisons between intelligence-test scores and job performance were analyzed.

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[8] O. A. Ohmann, "A Report of Research on the Selection of Salesmen at the Tremco Manufacturing Company," *Journal of Applied Psychology,* XXV (1941), 18–29.

[9] Daniel J. Bolanovich and Forrest H. Kirkpatrick, "Measurement and Selection of Salesmen," *Educational and Psychological Measurement,* III (1943), 333–39.

[10] Gilmore J. Spencer and Richard Worthington, "Validity of a Projective Technique in Predicting Sales Effectiveness," *Personnel Psychology,* V (1952), 125–44.

[11] According to a survey conducted apparently in 1944, only 15 per cent of the 500 companies were using psychological tests. See J. Robert Hilgert, "Use of Sales Aptitude Tests," *Harvard Business Review,* XXIII (1944–45) 484–92. However, a recent survey is reported as indicating that 37 per cent of the 856 companies surveyed are using them. See *Advertising Age,* July 30, 1956, p. 23.

[12] Cleveland, *op. cit.,* pp. 216–17. For a discussion of the developments in dealing with the criterion problem, see Haire, *op. cit.*

Three types of psychological tests are used: intelligence, personality, and interest. Although there seems to be agreement among psychologists that intelligence is not vitally important for proficiency in selling, there is a definite view that a certain minimum is required. It has been argued that high intelligence may lead to job dissatisfaction. In considering men for promotion to sales manager, however, there is evidence that intelligence level has useful diagnostic value.[14]

It appears obvious that different selling situations may require different levels of intelligence, and some evidence suggests that the intelligence required may vary among selling jobs. Also, in an analysis of the salesmen of Burroughs Adding Machine Company, it was concluded that the ability to learn quickly and efficiently is a significant contributor to sales performance.[15]

Personality tests are coming to have wider currency:

> The trend has been away from the use . . . (of) intelligence and other types of "problem" examinations and in the direction of personality and interest inventories. The concept of "sales ability," in other words, has shifted increasingly to the idea that "salesmanship" is dependent upon some sort of a social pattern, the outlines of which are still fuzzy.[16]

The Bernreuter Personality Inventory may be used. Projective techniques such as the Wechsler-Bellevue, Rorschach, and the Thematic Apperception Test seem to enjoy increasing popularity. Although the future significance of these tests can be viewed optimistically, they are at present limited in part because they were originally designed to deal with abnormal people. Also, only a few attempts to validate them have been published.[17] The social aspects of a salesman's task, however, and his adjustment to these social characteristics of the situation have been receiving increased attention. The model of buyer behavior with its emphasis upon social interaction argues that this attention to the social features is justified. More specifically, a buyer's personality can be largely identified by his values, and the model predicts that people with like values will interact more effectively. One significant part of the process of selecting salesmen is to identify the values of the clientele the salesman is to serve and to select salesmen that possess these values. Further, some people are allegedly more persuasive than others, and these should make better salesmen.[18]

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[13] Edwin E. Ghiselli and Clarence W. Brown, "The Effectiveness of Intelligence Tests in the Selection of Workers," *Journal of Applied Psychology,* XXXII (1948), 575–80.

[14] R. F. Lovett and M. W. Richardson, "Selecting Sales Personnel: The Significance of Various Types of Test Material," *Personnel Journal,* XII (1933–34), 248–53.

[15] Carl H. Rush, Jr., "A Factorial Study of Sales Criteria," *Personnel Psychology,* VI (1953), 9–24.

[16] Cleveland, *op. cit.*, p. 248.

[17] For an application of projective techniques to salesmen, see David A. Rodgers, "Personality Correlates of Successful Role Behavior" (Doctoral dissertation, The University of Chicago, 1953).

A large number of attempts to use personality tests have been reported; the researchers appear to agree that a battery of tests is required rather than a single test. The results of an attempt to validate a battery of personality tests are shown in Table 33. The battery was administered to a total of 348 applicants, and the analysts' predictions based on the tests were then compared with executive ratings of each man. There was agreement on 253 of the applicants, but disagreement on 95.

TABLE 33

EXECUTIVES' AND PSYCHOLOGISTS' RATINGS OF SALESMEN

EXECUTIVES' RATINGS	ANALYSTS' PREDICTIONS	
	Satisfactory	Unsatisfactory
Satisfactory	208	45
Unsatisfactory	50	45

Source: Richard W. Husband, "Techniques of Salesman Selection," *Educational and Psychological Measurement,* IX (1949), 133.

The most widely used measure of interest is the Strong Interest Test. Standard scores have been prepared for 34 professions or vocations, only two of which, life-insurance salesman and real-estate salesman, relate to sales positions. Some companies, after applying the test to their salesmen and relating the scores to sales performance, prepare their own standard scores for the test. The Strong Interest Test assumes that those in an occupation are proficient in that occupation. A number of analyses involving life-insurance salesmen suggest that the test may be effective. For example, 85 per cent of the men who scored "A" on the test sold at least $100,000 of insurance. Only 51 per cent of those scoring "B+," 44 per cent of those scoring "B," and 25 per cent of those scoring "C," did as well as those scoring "A."[19] There is some evidence that the Strong Interest Test is a better predictor of sales proficiency among younger men. "For those under 25, a high score gave 3.3 times the chance of success, and those over 30 had 2.3 the chance of success when they had a high score."[20] The real question, which is not answered, however, is how well the test does relative to alternative methods of selection.

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[18] Eliot D. Chapple and Gordon Donald, Jr., "An Evaluation of Department Store Salespeople by the Interaction Chronograph," *Journal of Marketing,* XII (1947–48), 173–85.

A number of available tests are alleged in some sense to measure sales ability specifically. As a rule, no attempt is made to validate tests of this type.[21]

The Interview. The effectiveness of the interview in selecting salesmen is probably exaggerated. Executives often make claims about their ability to "size up" a man accurately. As an experiment, 800 visitors at a business exposition were shown the photographs of ten salesmen and were asked to rank them according to their estimates of the men's sales proficiency. The ratings did agree among the 800 visitors fairly well, *but* there was no relation between the visitors' rankings and the actual performance of the ten men. This not only suggests that appearance is a poor predictor but also that people tend to have stereotypes or beliefs about what salesmen should look like. The interview can be a useful tool but, above all, it must be standardized if an attempt at validation is to be made.[22]

Appraisal of Selection Procedure

The empirical nature of current selection procedures has been emphasized; however, the sociopsychological theory that underlies much of the model of buyer behavior can be employed to reduce the number of alternative salesmen's characteristics to be considered in formulating an effective company selection procedure. This is particularly true in the important area of personality attributes, which presents the most difficult problems of selection. The analytical problem is fourfold: (1) to discover the pattern of the individual's personality structure, motives, and attitudes; (2) to translate this into behavioral terms; (3) to project such behavior into a business setting; and (4) to estimate its probable effect on work performance.[23] When this approach was applied to a company employing 129 salesmen, the analyst developed the following criteria:[24]

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[19] E. K. Strong, "Interests and Sales Ability," *Personnel Journal,* XIII (1934–35), 216.

[20] Richard W. Husband, "Techniques of Salesman Selection," *Educational Psychological Measurement,* IX (1949), 135.

[21] See, however, Martin M. Bruce, "A Sales Comprehension Test," *Journal of Applied Psychology,* XXXVIII (1954), 302.

[22] Robert N. McMurry, "Validating the Patterned Interview," *Personnel,* XXIII (1946–47), 263–72.

> *High energy applied to work:* Physical energy expressed in motor activity, and aggressive initiative applied to situations and people, are required to keep a salesman "pounding the pavement" day in and day out.
>
> *Need for verbal expression:* The verbal component of selling is illustrated in some popular sayings: a salesman's job is "to walk and talk"; a real salesman is "always selling something to somebody"; and "a good sales talk is never wasted."
>
> *Adequate social skills:* Since a salesman's prime function is to interact with people, he requires sufficient social techniques to make him acceptable to individuals of differing social and economic levels and differing temperaments.
>
> *Adjustment to authority:* In order for a salesman to be loyal to the company and its aims, to follow instructions, and to observe company policy, he needs to keep his own self-assertiveness within reasonable bounds in his relations with superiors.
>
> *Realistic ambition:* Ambition involves a realistic assessment by the individual of his own abilities and limitations. Successful salesmen usually take their work for granted, enjoy it for its own sake, and are satisfied with its rewards.
>
> *Ability to "wear the customer's shoes":* A certain capacity for empathy —for seeing the problem from the customer's point of view—contributes to easier and more effective selling and to building good will.
>
> *Status drive:* Various levels of our social class structure, referred to in Chapter 4, tend to generate different kinds of status drive. As a general rule, the strongest drive for a canvassing type of sales seems to stem from an upper-lower- or lower-middle-class background.
>
> *Intelligence geared to the job:* The lower limit of acceptable intelligence is judged to be approximately bright-normal (estimated Wechsler-Bellevue 110). Above that level, intelligence, per se, appears to be of less importance than the way it is used. What is required is a "practical" kind of intelligence, high enough for the salesman to deal comfortably with business procedures, yet not so high that he will prefer the totally intellectualized approach to problems. The functioning of intelligence depends upon two factors: the individual's personality adjustment configuration, and his cultural pattern. The practical usefulness of the personal-history technique in estimating functioning intelligence consists in its being geared not only to estimated problem-solving ability, but also the effect of personality disturbances and social class background on the way it is used.

This type of analysis would seem to give strength and meaning to a company's research in formulating a selection program.

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[23] Spencer and Worthington, *op. cit.*, p. 142.

[24] *Ibid.*, pp. 142–43.

A company with a large number of salesmen and/or rapid turnover has a distinct advantage in formulating selection procedures because reseach is more feasible.

TRAINING SALESMEN

Training salesmen has many facets, extending all the way from incidental comments by the sales manager in his day-to-day contact with his men to formal course work. Much of the former is sometimes termed "motivating" salesmen as contrasted with "training." Supervision is also viewed here as a part of the training problem. The method of compensation presumably performs an important motivating role, but compensation will be discussed as a problem separate from training.

A survey of training objectives suggests that sales managers hope to accomplish a number of specific things by training, such as greater sales volume; improved customer relations; greater familiarity with company policies; greater tendency to sell all products in the line; better demonstrations and sales presentations; more encouragement of the customer to use the product properly; fewer lost sales; better merchandising work; reduced selling cost; greater average dollar volume per call; reduced customer complaints; reduced number of calls per order; more missionary work; and greater percentage of sales in the high-profit items.[25]

Little seems to be known generally about the qualities in salesmen that can and cannot be improved through training. That learning from experience does occur is supported, for example, by the data in Figure 69, but as the deviations about the learning curve suggest, numerous other factors are operative.

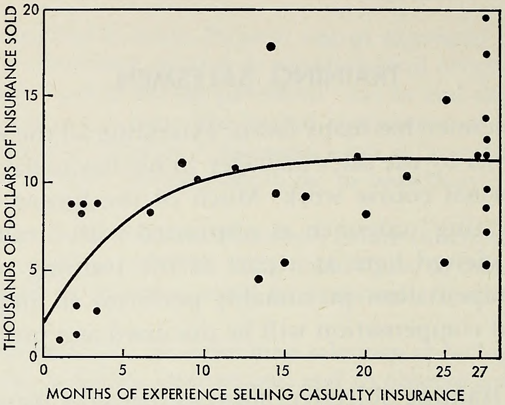
Everyone would agree that training can improve product knowledge and that information about why buyers purchase the product can probably increase sales effectiveness. Some companies go so far as to prepare "canned" sales talks which the salesmen memorize. Company policies can also be explained. However, with respect to personality qualities—the salesman's ability to interact with clients—it is not at all clear whether training will help. Since some personalities are more persuasible than others, perhaps the salesmen can be taught objective criteria by which to distinguish between the more and less

---

[25] For the sales manager's view of the purpose of sales training, see "A Picture of Hiring and Training Today: A Re-Cap of the NSE Survey," *Sales Management*, February 15, 1950, Table 8, p. 82.

FIGURE 69

Learning Curve for Insurance Salesmen



Source: Edwin E. Ghiselli and Clarence W. Brown, *Personnel and Industrial Psychology* (New York: McGraw-Hill Book Co., Inc., 1955), Fig. 3–2, p. 80.

persuasible.[26] It may be that the most valuable "training" is the aid of the sales manager or supervisor in helping the salesman understand his role as a salesman. The importance of the selling function to the general economic welfare that is emphasized at sales meetings is probably an intuitive attempt to do this. A better supported rationale for selling in general is needed than is now available. "Training" effort directed toward increasing the salesman's tendency to identify with the company will probably have a favorable effect upon his performance. A fuller understanding of the sociopsychological nature of the interaction situation can provide firmer underpinnings for management decision about training procedures and content. Whether this can be transmitted to any but the more intelligent and well-educated salesman and so improve his effectiveness is at this time a moot point.

Given this general lack of information as to what training can accomplish, it would seem that the emphasis should be upon evaluating the effectiveness of training. Surprisingly little effort has been directed at this phase of the problem. "The major deterrent undoubtedly lies in management's reluctance to 'waste time' in testing something it has convinced itself is good. Training programs are uniformly excellent—by expert opinion and proclamation."[27]

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[26] See Carl I. Hovland and Irving L. Janis (eds.), *Personality and Persuasibility* (New Haven: Yale University Press, 1959).

[27] S. Rains Wallace, Jr., and Constance M. Twichell, "An Evaluation of a Training Course for Life Insurance Agents," *Personnel Psychology,* VI (1953), 25.

Through a little extra planning, an experiment can be performed that will provide meaningful and important evaluations when applied to different facets of the training program. By dividing all or a part of the company's salesmen into two groups and subjecting each group to a different training procedure, differences in effectiveness can be isolated. A study revealed that one training program was more effective than another for the newer men in the sales force. There are complications in evaluating training programs experimentally, but these complications are not insurmountable.[28]

The questionnaire method may be effective in obtaining information about salesmen's attitudes—information that can aid in designing a training program. For example, a questionnaire of 124 questions used at the Libby, McNeill and Libby Company was intended to reveal the following categories of information:

Understanding of job goals
Sales training
Company products
Pricing policy
Credit policy
Customer service
Value of advertising and sales promotion
Supervisor's administrative ability
Management's administrative ability
Communication

The brevity of this discussion of training salesmen does not suggest that training and motivating salesmen are not important topics. It does suggest, however, that not much is objectively known about these topics.

COMPENSATING SALESMEN

One of management's major tasks is to formulate rules that will encourage salesmen to serve the company's goals. The idea is that, either through ignorance or lack of congruity between the individual's goals and the company's goals, a subordinate will behave so as to "optimize" company goals only if policies are designed in such a way as to encourage him to do so. This principle should guide the development of a compensation method. The system of compensation, for example, should be designed to stimulate the salesmen to exert more effort in selling the more profitable rather than the less profitable items in the product line or in selling to the more profitable customers. This is the theory behind compensation methods involving commissions—a salesman who is paid according to his volume of sales is presumed to try harder than if he were paid a straight salary. Compensation may also be considered in terms of the salesman-client interaction profit equation discussed earlier, that is, to view compensation as a reward which taken with other rewards and costs of the interaction situation will yield him the profit necessary to persuade him to continue the interaction relation.

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[28] For a report of an evaluation through experiment, see *ibid.*, pp. 25–43.

In practice, there is a great variety of compensation methods which can be roughly classified into (1) straight salary, (2) part salary and part commission, and (3) straight commission. A number of surveys of company compensation systems suggest that about one fourth of the companies use the first method, one half use the second method, and one fourth use the third method.[29]

Unfortunately, no satisfactory evidence is available to indicate which type of method is more effective under given conditions. It is argued that commission methods are more useful in cyclically depressed periods, and that fixed income methods are more effective in prosperity. Probably, the extent of nonselling duties that the salesman performs is important. For example, if a salesman does delivery and repair service, the emphasis should be on the straight-salary type of compensation. Certain qualitative criteria may be helpful in designing the compensation plan:

> *Income and security:* By providing a minimum income the compensation plan can yield security to the salesman. It is generally felt that excessive fluctuation in earnings should be avoided.
>
> *Incentives:* The plan should contain an incentive element; but for it to be effective, it must be understood by the salesmen.
>
> *Flexibility:* The plan should be designed to meet fluctuations in business conditions. Perhaps both minimum and maximum limits on earnings are essential.
>
> *Economy:* The plan should be designed to provide an incentive to increase sales but at a cost no greater than competitor's costs. Costs include payments to salesmen, travel, and other expenses, and the expenses of operating the compensation plan.
>
> *Fairness:* In order to contribute to morale, the plan should appear fair both to management and to the salesman.[30]

One of the largest petroleum companies pays its salesmen a fixed salary on the grounds that a commission system leads to friction among the salesmen. The salary in this case is determined by "merit ratings" and the "job title" assigned to each salesman. Modern social psychology suggests that one of the key determinants of the type of compensation method to use depends upon the extent to which the company's salesmen constitute a "group" in a psychological sense. The group concept was discussed in connection with the model of buyer behavior in Chapter 3. If the members of the sales force work together intimately so that group norms tend to develop, a fixed salary or possibly a group bonus method is advisable. As in the petroleum company, a commission system may create friction. If, on the other hand, the salesmen work individually and have limited contact with each other, then a commission system may stimulate rivalry and greater effort. Although important, the group aspect is but one determinant to be weighed against other determinants that usually exist in a specific problem.

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[29] Bertrand R. Canfield, *Sales Administration* (3rd ed.; New York: Prentice-Hall, Inc., 1954), pp. 233–34.

[30] Harry R. Tosdal, "How to Design the Salesman's Compensation Plan," *Harvard Business Review,* XXXI, No. 5 (1953), 64.

As in other personal-selling problems, a compensation method should be selected by experimenting, if possible, and using social psychology as an aid in formulating the hypotheses that are tested in the experiments. This would seem to be especially valid until more is known about the whole process of personal selling.

ALLOCATING SALES EFFORT

As an aid toward insuring that salesmen use their time most effectively and to have a basis for evaluating their performance, salesmen are assigned certain customers to call on. More often, as a matter of convenience, the assignment is to a particular geographic area or "sales territory" instead of specific customers. Sometimes more than one salesman may cover the same geographic area for a company. For example, one salesman may call on the retail buyers in an area, and another salesman may call on the industrial buyers located in the same territory. In order to avoid confusion, only strictly geographic territories will be discussed here, but the problem is essentially the same if some basis other than geography is employed.

A simple framework will be helpful in comprehending the nature of the allocation problem. This framework revolves around the following three terms and their relationship to each other: potential, forecast, and quota.

A "potential" is the market demand for a product in a given territory under given conditions of the controllable and uncontrollable determinants of demand. The concept of market potential was developed in Chapter 8 in the analysis of the spatial dimension of demand.

A "forecast" is the volume of sales that a *company* expects to obtain in a given territory. The sum of the individual territorial forecasts is the basis for company planning, such as production schedules and cash budgets. Territorial forecasts are essential in planning deliveries from factories to warehouses. The territorial forecasting problem was discussed in Chapter 5.

A "quota," on the other hand, is the volume of sales that a given salesman is expected to achieve in a given territory. Quotas are set in such a way as to provide a maximum incentive. Some experienced sales managers believe that quotas should be set at different levels for different salesmen on the grounds that one man will be stimulated by a quota he cannot attain while another man must have a reasonably attainable quota or he will become discouraged and less productive. Therefore, the failure to distinguish between a forecast and a quota can result in either bad planning or less effective incentive, or both. If the marketing operation is to be integrated satisfactorily with overall company plans, the distinction is basic.

Potentials are used for two distinctly different purposes: (1) to allocate marketing effort, and (2) to achieve control over the marketing operation. The key aspect of control, as explained in Chapter 1, is the measurement of performance. The discussion here will be confined to the allocation of marketing effort—specifically, personal-selling effort. In the following section, potentials will be dealt with as aids in control. It is important for the reader to bear in mind that the principle to be followed in allocating personal-selling effort is applicable to the allocation of advertising as well.

Allocation by Market Potentials

Because of their ambiguity, market potentials have serious limitations as devices for allocating sales effort, yet some such device is essential to managing a sales force effectively. The ambiguity of the concept is indicated by the definition of market potential, which is "market demand for a product in a territory for a given period of time." As Chapters 3, 4, and 5 suggested, industry demand typically is a result of a number of determinants, one of which may be the joint effect of the marketing plans of the companies selling in the territory. In order to render the concept less ambiguous, all of the relevant determinants should be specified. Evidence suggests that only a crude measure can be expected since these determinants may vary among products, territories, and over time.

How can a company's market potentials be measured to serve as the basis of management decision? Two methods were described in Chapter 8—*Sales Management's* Index of Buying Power for consumers products and the Standard Industrial Classification method for industrial products. Let us examine briefly the Index of Buying Power. (1) It does not allow for short-term changes in purchasing power. In fact, estimates of potentials in practice are usually based upon factors that change slowly, such as population, whereas sharp cyclical changes occur in the demand for many products. The reader need only recall the estimates of income elasticity presented in Chapter 4. Moreover, these changes do not occur uniformly over the country. (2) Consumer tastes vary from place to place. For example, lamb and mutton consumption is much higher in New England than elsewhere in the United States. (3) It is hard to believe that the sale of at least some consumer products is not influenced by the joint marketing effort of the companies making up the industry. The joint advertising effect, particularly for a new product, is probably important in influencing sales. (4) Although the short-term industry demand for meat at retail is price-inelastic, the industry price still has some effect in increasing industry sales.[31] These are some of the questions that can be raised about the difficulties of measurement.

Another method of measuring potentials, the multiple correlation method, was forcefully advocated a number of years ago. In general, the correlation procedure is to relate a company's sales in the various territories with certain variables that, on the basis of logic, appear to be related to sales of the product.[32]

Assuming that an unambiguous definition of potential has been arrived at and that it has been perfectly measured, how can it be used as the basis for allocation? The rule usually stated or implied is that *selling effort should be proportional to the potential* in each area. But how about an area, for example, where competitors have become strongly entrenched over the years? In practice the solution has been to make intuitive evaluations of the strength of competitors. Thus, even assuming away the two difficult problems of concept and measurement, some intuition must be used. Yet, the sensible use of potentials can contribute effectiveness to the management of the sales force.

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[31] Elmer J. Working, *Demand for Meat* (Chicago: The University of Chicago Press, 1954), p. xi.

[32] H. R. Wellman, "The Distribution of Selling Effort among Geographic Areas," *Journal of Marketing,* III (1938–39), 225–41. For additional comment on the Wellman article, see L. D. H. Weld, "The Value of the Multiple Correlation Method in Determining Sales Potentials," *loc. cit.,* pp. 389–93; and Lyndon O. Brown, "Comments on 'The Distribution of Selling among Geographic Areas,' " *loc. cit.,* pp. 394–96.

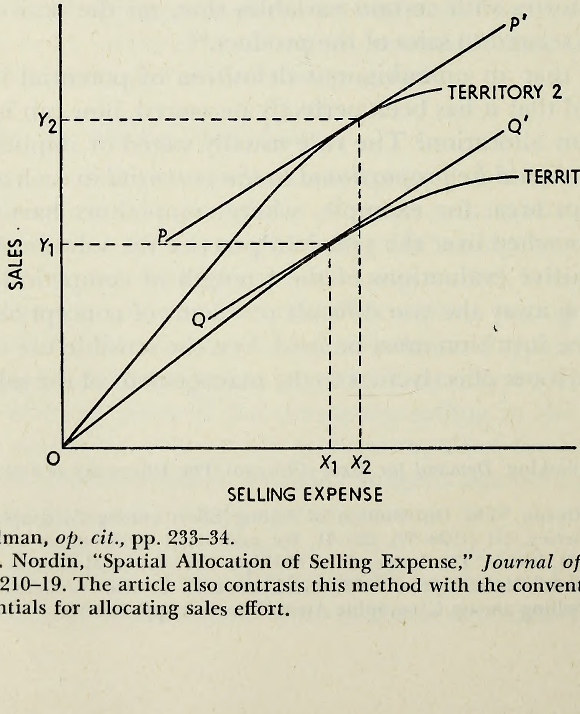
Ideal Method of Allocation

A pertinent question is, "Since an allocation decision cannot be avoided, is there an alternative to the use of potentials?" The rule for an optimum allocation is that the level of selling expenditure in each territory should be such that the incremental receipts per dollar of selling effort should be equal among all territories. This sounds familiar since it is a special case of the short-run optimizing analysis of Chapter 7.[33] Figure 70 illustrates the rule graphically. The curved lines indicate the relations between sales and selling expenditure in two sales areas, Territory 1 and Territory 2. The optimum allocation of a given personal-selling appropriation is to spend OX_1 in Territory 1 and OX_2 in Territory 2 because PP' and QQ', which are tangent to the respective territorial personal-selling-sales relations, are parallel.

The rule for an optimum allocation is that the *ratio of the variable cost of personal selling to sales in each territory should be equal.*[34] This rule is developed as a consequence of two assumptions which will be explained subsequently. The rule is illustrated in Figure 71, which

FIGURE 70

OPTIMUM ALLOCATION OF SELLING EXPENSE



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[33] Wellman, *op. cit.*, pp. 233–34.

[34] J. A. Nordin, "Spatial Allocation of Selling Expense," *Journal of Marketing*, VII (1942–43), 210–19. The article also contrasts this method with the conventional method of using potentials for allocating sales effort.

shows two territories and the relation between variable selling cost and sales in each. The allocation to each market is $2,000 when the appropriation is the same in each market. It is clear that, by reducing the expenditure in Territory 1 and increasing it in Territory 2, total sales can be increased without increasing total expenditures.[35] For example, by reducing expenditures in Territory 1 from $2,000 to $1,000 and increasing them in Territory 2 from $2,000 to $3,000, total sales can be increased by $7,500 even though total expenditure remains the same.

The marketing executive, however, must decide *how much* of a shift in selling cost among his territories is necessary to achieve the optimum allocation. A method for answering this question has been developed, but for the sake of simplicity it will be assumed that there are only two sales territories, although the method can be extended to any number of territories.[36]

First, for some representative past period we need to know the relation between total variable selling cost and sales in each of the two territories. We assume that this relation is described by a_1, a_2 and α in the following equations:

$$f_1(x_1) = a_1 x_1^{\alpha}\,, \tag{1}$$

$$f_2(x_2) = a_2 x_2^{\alpha}\,. \tag{2}$$

These equations define the assumptions under which we operate, but they are less important in practice since it is Equations (3), (4), (5), and (6) which actually tell us how to compute the optimal expenditure for each territory. In Equation 1, $f_1\ (x_1)$ is the cost of selling the x_1st article in Territory 1. Likewise in Equation 2, $f_2(x_2)$ is the cost of selling the x_2nd article in Territory 2. The exponent α indicates the shape of the relationship between variable selling cost and sales. Then with a_1 and a_2 solved by Equations 5 and 6 below, the following equations can be used to obtain an approximation of the optimum allocation:

$$e_1 = \frac{A}{\left(\frac{a_1}{a_2}\right)^{\frac{1}{\alpha}} + 1}\,, \tag{3}$$

$$e_2 = \frac{A}{\left(\frac{a_2}{a_1}\right)^{\frac{1}{\alpha}} + 1}\,. \tag{4}$$

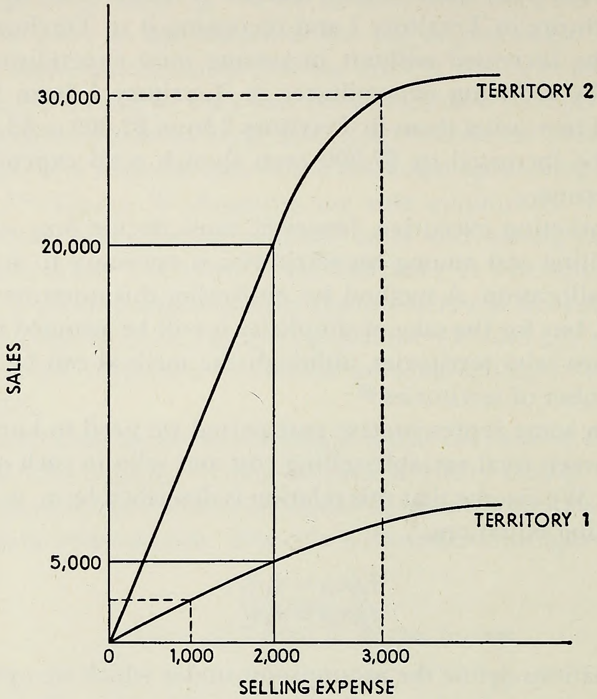
---

[35] For an application of a related type of analysis, see Magee, "The Effect of Promotional Effort on Sales," *op. cit.*

[36] The equations for applying the method to any number of territories are included in the Appendix.

FIGURE 71

COMPARISON OF TWO ALLOCATIONS OF SELLING EXPENSE



In Equations 3 and 4, A is the total sales expense to be allocated, and e_1 and e_2 are the allocations to the respective territories.

Let us work the example which is graphically portrayed in Figure 72. Last year, when the total selling expense of $4,000 was allocated equally between the two territories, the company sold $16,000 in Territory 1 and $20,000 in Territory 2. Experience suggests that in each of the two territories the exponent, α, is 0.5. First we obtain the value for a_1 in Equation 1 in which E_1 is last year's expenditure in Territory 1 and x_1 is last year's sales in Territory 1:

$$a_1 = \frac{(\alpha + 1)\, E_1'}{x_1'^{\,\alpha + 1}} = \frac{(1.5)(2{,}000)}{(16{,}000)^{1.5}} = .001485\,. \tag{5}$$

$$a_2 = \frac{(\alpha + 1)\, E_2'}{x_2'^{\,\alpha + 1}} = \frac{(1.5)(2{,}000)}{(20{,}000)^{1.5}} = .001060\,. \tag{6}$$

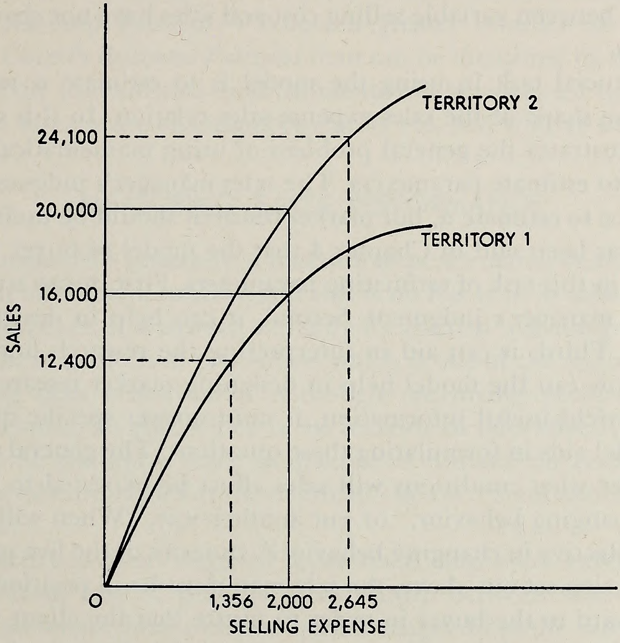
Using Equations 3 and 4, the optimum allocations, e_1 and e_2, of the total appropriation A can be computed:

$$e_1 = \frac{A}{\left(\frac{a_1}{a_2}\right)^{\frac{1}{\alpha}} + 1} = \frac{4{,}000}{\left(\frac{0.001485}{0.001060}\right)^{\frac{1}{0.5}} + 1} = \frac{4{,}000}{(1.401)^2 + 1} \cong \$1{,}356\,,$$

$$e_2 = \frac{A}{\left(\frac{a_2}{a_1}\right)^{\frac{1}{\alpha}} + 1} = \frac{4{,}000}{\left(\frac{0.001060}{0.001485}\right)^{\frac{1}{0.5}} + 1} = \frac{4{,}000}{(0.714)^2 + 1} \cong \$2{,}645\,.$$

FIGURE 72

Optimum Allocation of Selling Expense: an Example



The optimal allocations to Territories 1 and 2 are $1,356 and $2,645, respectively.[37] The important question is how much will sales be increased by the reallocation of selling expenditures between the two markets. Under the new allocations, Territory 1 yields sales of $12,400 and Territory 2, $24,100.[38] The total new sales are $36,500, which exceed by $500 the sales obtained under the method of equal allocation of expenditures to territories.

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[37] As a result of rounding off figures, the two allocations added together slightly exceed the total appropriation of $4,000.

[38] The procedure for computing the sales volume with optimum allocation is omitted because it is not essential to the method. The optimal condition is verified here only for expositional purposes.

As a final step, the condition for optimal allocation can be checked. At the beginning of the discussion, the rule given was that the ratio of variable selling cost to sales must be the same in all territories. In Territory 1, the ratio is 0.1093; in Territory 2, 0.1097. They are only slightly different; whereas, under equal allocation, the ratios were 0.125 and 0.100, respectively.

The method may yield only an approximation of the optimum allocation because (1) it has been assumed that the value of α (0.5) was known and that it is the same in both territories, and (2) it has also been assumed that the underlying factors which determine the relationships between variable selling cost and sales have not changed significantly.

The crucial task in using the model is to estimate α which describes the shape of the sales expense-sales relation. In this sense the model illustrates the general problem of using mathematical models which is to estimate parameters. The sales manager's judgment alone may suffice to estimate α, but market research should be useful in the task. It has been said in Chapter 4 that the model of buyer behavior can help in this task of estimating parameters. First, it can strengthen the sales manager's judgment. Second, it can help in designing the research. Third, it can aid in interpreting the research findings.

Just how can the model help in designing market research? For a study to yield useful information, it must answer specific questions. The model aids in formulating these questions. The general question is, "Under what conditions will sales effort be expected to be effective in changing behavior," or put another way, "When will interaction be effective in changing behavior?" In terms of the five principles of interaction set out above, the salesman must be in position to offer some reward to the buyer in order to insure that the client will continue to interact. It would seem, but it remains the task of basic research to tell us for sure, that the reward would be greatest in situations where the buyer is in Phase 1 of the purchasing process which can come about because of changing conditions, e.g., a new product appears. The salesman can supply information about the contribution of the brand to the buyer's goals. Feedback to the company is usually more significant to the salesman's company in Phase 1 behavior. The buyer's goals could be affected here because he has had less experience relating the alternatives to his goals under the given condition than in Phase 2, for example. In Phase 2, the more the alternatives tend to be differentiated, the more effective is the salesman. If the buyers are in Phase 3 of the purchasing process and they are not inclined to plan their purchases, then sales effort would tend to influence their behavior favorably. These statements about the conditions under which sales effort tends to be effective imply questions that market research should answer.

Supplementing the mathematical allocation model, the Standard Industrial Classification (Chapter 8) can be helpful in guiding industrial and distributive salesmen by identifying specific buyers in their territories of which they may not be aware. The procedure is to compare the number of known prospects in a county with the number of establishments in a particular industry in that county as indicated by *County Business Patterns.*[39] Where a greater number of plants is listed in *County Business Patterns* than can be identified by name, the names of the unidentified establishments can be obtained by consulting trade directories, chambers of commerce, and similar sources.

MEASURING SALES PERFORMANCE

In management generally, a measure of performance is an essential condition of effective control, and this is no less true in sales management. Moreover, it is needed not only for control but also for the development of a selection procedure, which is one of the major ways of increasing sales effectiveness. Although measuring performance is only a means to an end, which is the increase of sales effectiveness, all too often no attempt is made in practice to evaluate the results of the sales expenditure, which is the salesman's salary, commissions, and his expenses.

In practice, a great range of measures is employed, extending all the way from ease of personal relationship between sales manager and the salesman (how well the sales manager likes the salesman) to some approximation of contribution to company profit.[40] The first extreme is perhaps suggested by a study of the Burroughs Adding Machine Company in which it was found that management's ratings of salesmen and the salesmen's performance, as measured by per cent of quota achieved, average monthly (sales) volume, and average number of monthly sales, were not closely related.[41] Rodgers came to a similar conclusion from his study of salesmen in the food industry.[42]

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[39] See Chapter 8.

[40] For an extensive list of criteria, see Canfield, *op. cit.*, pp. 400–402.

[41] Rush, *op. cit.*, p. 18.

[42] Rodgers, *op. cit.*, p. 92.

Ideally the measure should be directly related to company goals. As one executive stated:

> After all, if a man or an office fails to make money for us, then we're in trouble—profits are our ultimate goal and our final test. What's more, when you measure by profitability, you automatically stimulate harder selling on the higher profit items, you take some of the pressures off price-cutting, and you focus attention on local expenses.[43]

It is conceivable as indicated in Chapter 2, however, that short-term profits can be obtained at the sacrifice of long-term profits. An example is in the acquisition of new customers, which often contributes little to the near-term volume of sales but it can be highly favorable to long-term profits.

In order to compute contribution to profit for each salesman, his total sales are compared with the costs that can be traced to his particular operation. The distinction between traceable and common costs was discussed in Chapter 7. If a manufacturing company is involved, the traceable costs usually are manufacturing cost, cost of transporting the product, salesman's commission and/or salary, and salesman's expenses. For a distributive company, such as a wholesaling enterprise, the purchase cost of the products sold by each salesman is used instead of manufacturing cost.

A method closely related to contribution to profit is the total gross profit on the sales volume of each salesman, which does not include salesman's commissions nor his expenses.

Quotas are more often used in evaluating performance than for any other purpose. Sometimes, however, they are intended to serve as an incentive, and compensation is related to the ratio of performance (sales volume) to quota. If an incentive is to operate effectively, however, the salesman must know its conditions. Yet, sales managers often prefer to adjust the relation between quota and forecast according to the individual salesman's *expected response* to a quota incentive. Some salesmen may be assigned a quota larger than the forecast, while others may be assigned quotas that are smaller than the respective forecast.

It would seem doubtful, however, whether these individually adjusted quotas should be explained to the salesmen since the explanation would probably create ill will among the salesmen. Two sets of records are required: (1) records composed of the sales volume that each salesman is *told* he is expected to achieve and (2) records of the volume that management *thinks* he will achieve. The two sets of accounting records that are often maintained in a company for income tax reasons provide a precedent. Certainly, the procedure of using two sets of records is desirable if *compensation* of the salesman is to be determined by the ratio between his performance and his individually adjusted quota, and his *evaluation* is to depend on the ratio between his actual performance and the quota management actually thinks he will achieve. In practice salesmen's quotas are usually set in some given ratio to, or identical with, territorial sales forecasts without regard to differences among salesmen in personality or other capacities.

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[43] Donald D. Couch, "Measuring the Effectiveness of Your Salesmen," (Marketing Series No. 93) (New York: American Management Association, 1954), p. 12.

This decision of whether or not to recognize intersalesman differences, and if so, how to develop a procedure which will permit the system of intersalesman differences to be administered adequately is the heart of the problem of management's relations with salesmen. A salesman need not necessarily know the performance criteria that are being applied to him, but where management hopes to modify the salesman's behavior (which is the purpose of incentives) the salesman must know the criteria by which his effectiveness is being appraised. As in all problems of learning, the connection between reward (reinforcement) and effort should be obvious to the learner. The problem of what should and should not be told the salesman would probably be answered differently according to the intelligence and personality of the salesman.

Having accepted certain criteria in evaluating the salesmen of a given company, the question remains as to the norm to be set for each criterion. In order to simplify the discussion, assume that a single criterion is being used instead of a multidimensional measure of performance. Specifically, assume it is "contribution to profit." What is going to be considered an "excellent," "satisfactory," or "poor" contribution to profit? Typically, it is some average of this year's performance for all salesmen in a similar category of the company. Comparing salesmen with one another suggests, however, that each salesman must have had an equal opportunity; this brings us back to the role of potentials, forecasts, and quotas. It may not be possible to make either a satisfyingly accurate estimate of potentials or a prediction of the company's share in each territory, which is the sales forecast. Nevertheless, conditions must to some extent be standardized among salesmen if salesmen are to be evaluated according to their performance in relation to one another. If the selling task, as contrasted with the salesman's performance of that task, is not standardized among salesmen, both the task and performance of the task are being evaluated and it becomes impossible to separate the two.

Precision in measuring potentials is an ideal to strive toward, but absolute accuracy is not necessary in order for the estimates to be useful in many situations. Perhaps one of the most important things to bear in mind is that no one satisfactory measure will apply to all products. The fallacy of attempting an all-purpose measure is illustrated by an examination of *Sales Management's* Index of Buying Power.[44] According to the Index, in 1945 Indianapolis contained 0.527 per cent of the national potential and Houston, 0.487 per cent, which would suggest that Indianapolis was a better market than Houston by 8 per cent. Twelve consumer products were compared between the two markets, and on the average Indianapolis sales were 8 per cent higher. When each product was examined individually, however, quite a different picture emerged. For one product, such as low-priced dresses, Indianapolis was 87 per cent poorer, but for high-priced coats Indianapolis was 58 per cent better than Houston. "Out of the twelve evaluations, *only three came within 10 per cent of the 8 per cent average differential* in favor of Indianapolis."[45]

The principles set forth for evaluating personal-selling effort apply just as well, with some modification, to evaluating wholesaler and retailer performance which were discussed in Chapter 11.

It is often suggested that sales performance is multidimensional; therefore, at least implicitly, some type of an index number of performance is essential. Among practicing sales managers the implicit nature is emphasized; that is, they do not verbalize the factors they use in the measuring process, and the failure to verbalize the factors gives rise to serious limitations. A sales manager can change his norms from time to time—and perhaps even change the factors—without really being aware of it, or at least admitting it to himself. The previously discussed evidence of the discrepancy between management's ratings of salesmen and the actual performance of the salesmen suggests that management's evaluations may be quite unreliable. "Rating sheets" have been devised in order to make such evaluations more objective. A rating sheet consists of a list of salesmen's qualities which are considered relevant for the particular company; a range of values, for example, one to ten, is set for each quality. Then, each salesman is placed somewhere along the range (scale) on each quality and the resulting scores summed to provide a total rating for him.

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[44] Joseph H. White, "Measuring Local Markets," *Journal of Marketing*, XII (1947–48), 222–23.

[45] *Ibid.*, p. 223.

Personnel psychologists have prepared a number of multidimensional measures of performance.[46] Such a measure can be developed only after a careful job analysis to be sure that the critical features of the job are incorporated. It may be necessary, for example, to include the number of calls made by each salesman so that those activities contributing to long-term market development are not sacrificed.

With the two tools, equal market potentials and a measure of performance, a sales manager can proceed to compare performance among salesmen in order to evaluate them. If differences exist, and they typically do, the course of action will depend upon the circumstances. Perhaps a training program for the less effective salesmen is in order. The compensation scheme may have to be modified. Drastic action in the form of discharging a salesman may be necessary, which is a tacit admission that the selection procedure has failed and therefore should be improved.

Finally, equal market potentials are useful for evaluating the effect of any marketing effort: new products, different marketing channels, prices, and advertising, as well as personal selling. The evaluation is accomplished by varying the marketing plan in different territories; the standardized market potentials permit us to compare the sales results in the different markets and then to conclude that the differences in sales are due to the different plans.

SUMMARY

Because of the magnitude of the personal-selling expenditure in many companies, any improvement is likely to yield a significant improvement in profits. Although intuition plays a major role in management in this area, there is hope that market research techniques, particularly when the experimental method is employed, can contribute to rational decision making. It is true that little is known about the task of selling and its sociopsychological implications for the participants in this interaction situation of salesman and potential buyer. Even here, however, interaction theory has been developed and there are isolated studies of significance.

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[46] Rush, *op. cit.;* Bolanovich and Kirkpatrick, *op. cit.;* and Husband, *op. cit.*

The evaluation of performance bears an especially heavy responsibility in sales-management decisions, and market potentials are usually an essential tool in making the evaluation. For the decision to allocate sales expenditures to territories, however, market potentials have severe limitations. Methods advanced here for allocating effort and evaluating performance in sales management have application in advertising and in marketing channels as well.

PART IV

Marketing Organization

Chapter 15

PLANNING AND ORGANIZATION

Part III was presented primarily in terms of independent decisions made by the marketing executive; today, however, more and more marketing decisions are not made independently of each other but are considered as co-ordinated parts of the complete marketing plan. This development toward greater planning has occurred largely in response to the tendency for decisions to be made *en vacuo;* decisions were made without sufficient regard to other decisions that had been made in the past or that were being simultaneously made elsewhere in the marketing operation. Repeatedly in modern corporations an imaginative decision fails seriously because some related element was not made consistent with the element being affected by the decision. A splendid new product is initiated, for example, but the details of the advertising, sales, and distribution elements are not co-ordinated. The customer becomes aware of the product through advertising and he wants it, but his local retailer does not yet stock it because the manufacturer's sales and distribution efforts have not been properly timed. The timing of these activities is crucial. Planning forces attention not only to the interrelations among the parts of the marketing operation but more specifically to the temporal dimension of these interrelations. Planning leads to the appropriate co-ordination.

A great variety of marketing plans exist. There are plans for each department of the marketing operation, there is a plan for the marketing operation as a whole, and finally, the marketing plan becomes a part of the corporate-wide plan. These various plans can be distinguished as planning *levels* within the company. Plans also differ with respect to the temporal dimension—monthly, quarterly, annual, two-year, five-year, etc. Other distinctions can be made, but these two—planning levels and temporal dimension—suffice here. The discussion will be mainly in terms of the *annual plan* for the *marketing operation* as a whole; in principle the other types of plans are quite similar.

Let us be more concrete about the nature of the planning process. The process often proceeds with the vice president of marketing discussing certain topics with each of his department heads: advertising, sales, merchandising, market research, and product planning. These topics are the amount of funds that may be available; the general nature of the plan as he sees it; and the strategy underlying the plan. From this base of information, each department head working with his subordinates and within the limits set by the vice president develops a much more detailed twelve-month plan for his department specifying *what* will be done by *whom, when, where,* and *how much* it will cost. Probably the more detailed the plan the more effective it is; presumably, however, there is some limit to this maxim. These plans are then sent to the vice president who reconciles them into a consistent annual plan for marketing which he in turn sends to the next higher level to be incorporated into the corporate-wide annual plan.

Planning is only a part of the chief marketing executive's task. He is also concerned with *control*—making sure that the plan is properly executed. The term "operations" is often applied to this activity. Control requires the establishment of standards and norms of performance and the means of communicating information about performance to the appropriate executive. The principles of control were presented in Chapter 1, and the problem of control was illustrated in Chapter 14 in connection with the role of market potentials in controlling the sales force.

When discussing decisions in the earlier chapters, it was possible to assume away the organizational framework within which decisions are made, but planning and control are so intimately a part of the organization fabric that they must be included to make the discussion complete. What is meant by organization? The standard organization chart of who reports to whom in the company hierarchy will suffice as a representation for now, but as we shall see, it is an exceedingly simplified picture. The organization will be discussed in terms of its *influence* upon the *process* of developing the annual marketing *plan*.

CO-ORDINATION

It was said in the first paragraph of this chapter that planning aids in securing co-ordination in marketing activities. Why should co-ordination be a problem? One reason is that by specializing activities in a company it is possible to increase efficiency. "Specialization" means that each man in the organization carries out a more limited range of activities and thus he is able to become more proficient. Many companies now have the following specialized departments: advertising, distribution, market research, planning, product development, sales, and marketing administration. However, specialization can be had only at a price. It necessarily increases the interdependence among the departments, and this interdependence gives rise to the problem of co-ordination. In other words, the need to co-ordinate places a limit on the extent to which specialization in a company can be used to increase individual efficiency.

As indicated, planning is one way of obtaining co-ordination in the activities of a company's marketing operation. Co-ordination can also be secured through feedback; after a decision is made, information about the consequences (results) of the decision are "fed back" to the executive so that, if need be, he can correct his activities (make new decisions) to provide better results. An illustration of each method of obtaining co-ordination will show more sharply how the methods differ.

Let us assume that the decision has been made to initiate a new product. Under the planning method, we lay out a time schedule which specifies *when, where,* and *what* each person in the company will do and *how much* it will cost. It is now January 1, and the product is scheduled to appear in the market July 1. The advertising department will begin immediately to prepare the theme and the copy to support that theme, and determine the media to be used. The sales department will begin contacting the wholesalers and work out a program with them as to when their salesmen will begin to contact the retailers. In this statement a multitude of details which require decisions has been omitted, but perhaps the sketch conveys the idea. The plan that General Electric used in introducing the solenoid is shown in Figure 48 in Chapter 10.

Alternately, if a *strict* feedback arrangement is used to secure co-ordination in introducing the new product, each person involved makes his decisions without consulting anyone and he changes the procedures established by the decisions only *after* he receives information as to how well the product is going in the market. The complex, interdependent nature of new-product activity quickly reveals the absurdity of relying upon feedback alone. It is safe to say that the product could not succeed under these conditions.

Let us take another look at co-ordinating by plan, however. A plan implicitly assumes that every detail of the response of the market, and of our company organization, to the new product can be *predicted* with *perfect accuracy*. This, of course, cannot be done. To the extent that such implied predictions are incorrect, some feedback is essential to modify the plan and thus allow for these incorrect predictions. To the extent that the company's environment is stable, planning becomes a more feasible method of securing co-ordination. Finally, to the extent that a marketing decision area in the company—product, channels, pricing, advertising, or selling—is not planned, these decisions must be made as the need arises. Thus, marketing activity is carried out by neither feedback nor plan *alone*, but by a mixture of the two.

Market planning has increased as new management techniques, e.g., forecasting, the computer, etc., have become available and as growing technology—especially shown in new products—has forced a greater futurity upon management decisions. The experience of the Libbey glass division of Owens-Illinois Glass Company as related by its general manager is probably typical of many companies during the past ten years:

> In 1957, Libbey embarked on a long-term planning program to "put us in a position to control events, rather than have events control us." Top-level objectives were "fuller utilization of Libbey's available resources" and the pinpointing of "definite targets with definite time periods" for increased sales and profits over the next five years.[1]

Obviously, the marketing activity must be co-ordinated with the activities of the rest of the company. The requirement is perhaps most significant with respect to production, and in terms of specific types of marketing decisions involved in this co-ordination, new products probably raise the most acute problems.[2] Co-ordinating marketing with the activities of the entire company is too complex to discuss in the scope of this book, but the principles set forth here are equally applicable to this more general problem.

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[1] *Advertising Age*, March 4, 1963, p. 114.

[2] John A. Howard, "Looking Around: Coordinating Product Development," *Harvard Business Review*, XXXVII, No. 1 (1959), 33ff.

ORGANIZATIONAL INFLUENCES UPON PLANNING

The organization influences the planning process because the activities of different parts of the organization must be co-ordinated in order to permit it to function as a unified whole, and planning is one way of achieving this co-ordination. The organization exerts influence upon the planning process in other ways, too, however.[3] These additional influences come about because the organization is made up of a great variety of people—from the lowest clerk to the vice president of marketing—and all these people have one general quality in common. They are human beings and subject to the limited capacities of all humans to solve problems—to make decisions—in a complex environment. The reader will recall that the organizational influences upon the distributive, industrial, and institutional buyer were discussed in Chapter 3; the problem for the people carrying out the marketing activities, including higher-level executives, is almost identical. Consequently, all that follows will assume that the reader is familiar with the section entitled "Buying Behavior in a Complex Organization" in Chapter 3.

Faced with the problem of trying to make sense of the very complex conditions that characterize market planning, the decision maker develops a highly simplified picture of his world. This statement holds true of a person at any level in the marketing operation, but the discussion here will be mainly in terms of those at the higher level—the executives. Much relevant information does not reach the executive, and to avoid being swamped by the information that does, he filters out much of it. What he retains, then, is a highly simplified, screened, and biased picture of the real world—how buyers respond to the various elements of the marketing plan, how competitors respond, and how members of his own organization respond.

To the extent that the decision to be made is repetitive, the executive develops a routine way of making it. In fact, if it is highly repetitive, the decision process is the same as the Automatic Response Behavior pattern of Chapter 4, which in organization theory terms is a "highly programmed" decision.[4] As will be seen below there is considerable congruence between the decision process being described here and the model of buyer behavior. The difference is that organization theory is concerned with the organizational influences and does not provide an explanation of the details of the decision process. Some decisions are highly programmed, and others are not. The decision processes employed in formulating the annual marketing plan are presumably of the less programmed variety since they are carefully made once a year, although basic research is needed to verify this.

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[3] A statement of the theory underlying this discussion of organizational influences as they apply to marketing is contained in John A. Howard, *Marketing: Executive and Buyer Behavior* (New York: Columbia University Press, 1963), chap. ii. For a general statement of the theory, see James G. March and Herbert A. Simon, *Organizations* (New York: John Wiley & Sons, Inc., 1958), particularly chap. vi.

[4] For an example of a pricing decision described from one large company, see Howard, *Marketing: Executive and Buyer Behavior, op. cit.*, p. 16.

The nature of an executive's decision process—the way he makes his decisions in formulating plans—is determined by three dominant influences: perceptual limitations, the nature of goals, and the company's communication network.

Perception

The tendency for the human being to selectively perceive information was pointed out when buyer behavior was discussed in Chapter 3. That this tendency exists among executives has been documented, and anyone teaching in an executive program soon observes it; for example, from an identical set of facts marketing executives tend to see marketing problems, production executives to see production problems, etc. There is every reason to believe that the same phenomenon appears among different departments of a marketing operation because marketing problems are probably more complex than are found anywhere else in the company. Thus, the decisions that go into formulating an annual marketing plan are not the product of all the objectively available information.

Goals

The nature of organizational goals exert an influence upon the decisions that underlie a marketing plan. On the surface this may seem obvious, but the effect is not nearly as direct and unambiguous as suggested by the naive view that the company goal *is* the goal used in the decision. With respect to goals, for example, we see a twofold effect of perceptual bias: (1) Perception of the *consequences* of the alternatives that are evaluated against a given goal can be distorted. (2) Perception of the *goal content* itself can be incorrect and this possibility is greatly enhanced by the extreme complexity of goals in a large organization.

It is more correct to speak of a *structure of goals* in a company instead of "goals." As the means-end analysis of Chapter 3 indicated, a goal at one level in the company hierarchy is a *means* to the achievement of the next higher-level goal. As a consequence, goals are likely to differ both among levels in the company and among departments at the same level.

Goals have two highly significant characteristics: congruency and operationality. Congruency is the extent of the tendency for lower-level goals to serve higher-level goals. If a company is to achieve its goals, congruency of different level goals is necessary. Salesmen, for example, are often assigned the goal of maximizing sales (not profit), but their decisions are limited in such way that it is hoped that in maximizing sales the salesman's behavior will optimize *profits* at a higher level. He usually does not have control over price; if he did, maximizing sales probably would not yield higher-level optimal profits. His decisions are usually confined to how many calls he will make, which possible clients he will call on, and what he will say to the client on each of the calls. Thus, limiting the scope of the decisions at lower levels is one way of making that behavior consistent with higher goals.

Operationality of a goal is the capacity of that goal to be used by the decision maker in evaluating the consequences of alternative courses of action and thus enable him to decide which action is "better." It is helpful to distinguish between ex ante and ex post operationality. The previous sentence describes ex ante operationality—the operationality of the goal *before* the decision is made. In achieving control of a marketing plan it is desirable to measure the results against the same goals that were used in making the decision. Ex post operationality has to do with the capacity of the goal to be used to evaluate the consequences of the decision *after* the action has taken place.

Two recent studies of advertising goals deal with ex post operationality because they were concerned with measuring the effectiveness of advertising.[5] The N.I.C.B. study listed the following objectives of advertising as those gleaned from the experience of a large number of companies:

> To increase sales by encouraging potential purchasers to visit stores.
>
> To create an awareness of or an interest in a company's products or services (and thus motivate purchases) by informing people about types of products sold, for example.

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[5] Russell H. Colley, *Defining Advertising Goals* (New York: Association of National Advertisers, Inc. 1961); and Harry D. Wolfe, James K. Brown and G. Clark Thompson, *Measuring Advertising Results* (Business Policy Study 102) (New York: National Industrial Conference Board, 1962).

To encourage requests for more information, for example, about company products.
To create a favorable image of a company, such as by portraying the company's personnel favorably.
To inform company distributors, for example, of the availability of selling and merchandising aids.

The study goes on to point out that "these objectives were not actually used in *planning* the program, though they could have been."[6] It may be that advertising management doesn't take the time to develop goals for making decisions, but it may also be that goals which are quite operational ex post, such as those listed above, may not be equally operational ex ante.

Not much is known about what goals are used in marketing. The advertising studies are the only systematic attempts known to the author to identify the goals of a variety of companies for a particular decision area—such as advertising.

The planning process is often said to serve the function of reconciling divergent "points of view" among different executives. What this means is that different "goals" are reconciled and different "estimates of the consequences of the alternative courses of actions for those goals" are also reconciled. This discussion of goals has indicated how divergent goals can easily arise. Also, goals cannot be observed directly and instead must be inferred from overt or verbal behavior of the individual decision makers. The conferences devoted to formulating the plan and the memos written about it provide an opportunity for identifying divergent goals in a marketing operation. The possibility and fruitfulness of reconciling goals is far more important than might seem at first—goals are very subtle, and yet they play a central role in the behavior of an organization. The discussion of goals has also indicated, however, that goals are almost inherently different at different levels and among different departments. Thus, there are severe limits in reconciliation, limits that must be recognized.

What *should* the goals of a company be? At the top level the goals should be whatever top management says they are! To formulate, agree upon, and articulate goals at the top level is not an easy task. Not long ago in one of the country's largest department stores there was considerable debate among members of top management as to the advisability of a particular mail-order policy. The difference of opinion arose because one group used as its decision horizon a shorter time period than did the other group. The point was that the proposed course of action would not pay off in three years but had a high probability of paying off in six years. It is probably safe to say that in general top managements could profitably spend more time in formulating goals, but "Gresham's law" of planning operates: day-to-day activities drive out planning.

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[6] Wolfe, Brown, and Thompson, *op. cit.,* p. 3.

Given the goal content dictated by top management, goals below the top level should be characterized by congruency and operationality, and whatever goals satisfy these two conditions should be acceptable. It may be, however, that goals that tend to congruency lack operationality.

Maximum profit has been the recommended goal throughout this book, and whether executives *should, can,* or *do* maximize profits is an important question. Considerable debate has raged around this issue in the management and economics literature. The introduction of optimizing models has sharpened the issue and has enabled us to see it more clearly. For example, assume a sales manager in a large company who is located five levels from the top in the corporate hierarchy and who has charge of the sales force in one fourth of a populous state. He has fifteen salesmen reporting to him who call on retailers. His primary task is to select, train, motivate, and allocate this sales force. He has no control over product decisions, channel decisions, pricing decisions, or advertising decisions; thus, he is *constrained* in his managerial activity. Assume further that top management has decreed that the mathematical sales allocation model presented in Chapter 14 will be used throughout the company at the sales manager's level.

By directing him to use the allocation model, top management has said implicitly that he *should* maximize profits, at least, in the allocation decision. Since the sales manager is limited (1) in the particular decisions he can make and (2) the amount of money he can spend, he can only seek a *constrained maximum,* however, instead of an absolute maximum.

Can he maximize profits even in this more limited sense? The reader will recall from Chapter 14 that to do so he must be able to estimate α correctly; α describes the shape of the sales—sales expense relation in each market. The nature of the task of estimating α was discussed in Chapter 14.

Does he maximize profits? This we do not know, and for this reason the concept of "satisificing" has been advanced by Herbert A. Simon as a better description than maximizing of how decisions *are made* as contrasted with how they *should be made.*[7]

It has been said repeatedly that by using the allocation model the sales manager is attempting to maximize profits, but this is true only in a loose sense. In the model he is directly trying to maximize *sales revenue,* but since cost (the sales appropriation) is given to him by higher authority, he is, in effect, simultaneously striving to maximize profits, although not directly. Thus, a maximum sales goal at one level is consistent with a maximum profit goal at a higher level. This example illustrates the point made earlier that different goals may exist at different levels in the company and that constraining the lower level decision maker is a way of achieving goal congruency. The example implies that as normative mathematical models tend to be used more and more, we will have to study more carefully how the organization must be changed (how individual decision makers can best be constrained) to accommodate the models in achieving the most effective functioning of the company.

Communication Network

To formulate an annual marketing plan a massive amount of information must be transmitted through the organizational structure. In developing a plan, however, each executive is, in a sense, a victim of the company's communication network. He makes his decisions according to his (1) "theory" (a set of beliefs) of his market which he has built up from information received over a long period of time, and (2) his *current* information. A part of the plan, for example, is the decision of what price to charge, and this decision is significantly influenced by his beliefs as to what competitors will do in response to any change in his price. These beliefs are often a product of what his salesman has said that competitors did in the past in response to his price changes—whether they ignored them, followed part way, followed completely, or changed by even more.

The salesman like all human beings is not a completely neutral channel of communication. To the extent that he reported the facts incorrectly, the executive's beliefs as well as his current information are wrong. This dependence upon the company's communication network is a consequence of the phenomenon of *uncertainty absorption.* It exists throughout a company, but a single sales illustration will be used here in order to convey the idea more concretely. A salesman passes up through the communication network his *inferences* about what happened in the market instead of the *facts* from which he drew those inferences. In one company, for example, a salesman must infer from his competitors' retailers whether his competitors have cut their prices to their retailers. He can seldom be absolutely sure whether his competitors have changed their price; all he knows definitely is that his competitors' retailers have changed their price.

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[7] March and Simon, *op. cit.*

To make matters more difficult, it often happens that further inferences are made at one level from inferences received from the next lower level. In each case there is only a limited possibility of checking the facts. Thus, the executive must depend upon the inferences passed up to him rather than the facts. In other words, the inferences become "facts" for him. Thus, each level "absorbs uncertainty" for the higher levels.

Further, as we have already seen, human beings are not perfect perceivers; they perceive selectively. In the company example above, it is clear that the salesman was much more accurate in reporting competitors' price decreases than he was his competitors' price increases. How much of this incorrect reporting is conscious we do not know, but laboratory evidence shows how easily selective perception occurs. Even if the information reported to the executive is correct, he can misperceive it, and thus the plan suffers.

Finally, innovation is inhibited because executives within an organization tend to talk to each other instead of to outsiders. There is probably an unconscious tendency to ignore information from the outside *because* information from the outside often suggests that change is required within the organization. As one company president has stated, "The corporation that is well established tends to become complacent and set in its ways. At times this may make it appear to suffer from a kind of intellectual incest."[8] In one of the few experimental studies of the problem of the extent to which market information reaches decision centers in a decentralized company, six different pieces of vital information were planted with six industrial buyers who released the information to six of Company A's salesmen. Surveillance was maintained at the lowest level with profit responsibility of Company A to detect (1) how quickly, if at all, this information reached a specified decision center in the company, and (2) the amount of distortion occurring in the transmission process. Of the six pieces of information, four never went beyond the salesmen. The remaining two were received by the specified decision center, one within three days but the other one required almost two weeks. The former was distorted to the extent that it was useless to the decision center. Only the latter provided useful information.[9]

---

[8] Thomas M. Ware, "An Executive's Viewpoint," *Operations Research,* VII (1959), 4.

Bargaining

Bargaining is another fact of organizational life which distorts the rationality of the annual plan. Each unit, for example, department, wants more funds in order to do its job better. The marketing operation's annual plan is a reconciliation of the inherent interdepartmental conflicts of interest that become apparent when "shares of the pie" (the available funds) are being allocated, as they inevitably are in any planning and budgeting process.

CONCLUSIONS

The conclusions which can be made about the organizational influences on market planning apply in many cases to the control problem as well. The effects of the communication network apply equally well, for example, to performance information sent upward in the organizational structure.

Not *all* decisions are made once-for-all in planning. Certain decisions are made during the year—a part of them because the plan is changed as unexpected developments occur, and the others, because the uncertainty is too great for planning to be feasible. The nature of the organization influences these decisions too.

The analysis applied in this chapter to the annual marketing plan can be just as well applied to marketing plans at other organizational levels and with other planning horizons and to planning in areas of the company outside of marketing. Only a small part of the total analysis that is available was used in the previous discussion; the new area of organization theory promises considerable potential for marketing management.[10]

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[9] Gerald S. Albaum, "A New Approach to the Information Function in Marketing" (Doctoral dissertation, University of Wisconsin, 1962).

[10] See Howard, *Marketing: Executive and Buyer Behavior, op. cit.;* March and Simon, *op. cit.*

Appendix

Appendix

SELLING IN MORE THAN TWO TERRITORIES

Since most companies sell in more than two territories, the equations in Chapter 14 suggested by Nordin[1] must be generalized to n territories. Also, Nordin assumes that the exponents of the functional relations between variable selling expenditure and sales are the same in all territories and that the functional relations always take the form of some positive power of x. Although it is possible to generalize the equations to include situations in which the exponents differ among territories and the functional relations do not take the form of positive powers of x, only the restricted case will be dealt with here. The equations, when generalized to differing exponents, are more difficult to solve mathematically but can easily be solved graphically. In practice, the functional relations typically can be represented in the form of positive powers of x.

Consider selling costs of a given article in n territories. Definition: Let $y_i = f_i(x_i)$, the cost of selling the x_ith article in the ith territory. The total selling cost (of selling all x_i' articles) will then be $\int_o^{x_i'} f_i(x_i)dx_i$ where x_i' is an undetermined constant.

$\sum_{i=1}^{n} x_i$ is to be maximized (the total number of articles sold), but the total selling expense is held constant:

$$\sum_{i=1}^{n} \int_o^{x_i'} f_i(x_i)dx_i = A \text{ (constant).}$$

It is proved in this Appendix that this condition is met when $y_1 = y_2 = \cdots = y_n$ or $f_1(x_1) = f_2(x_2) = \cdots = f_n(x_n)$.

---

[1] J. A. Nordin, "Spatial Allocation of Selling Expense," *Journal of Marketing*, VII (1942–43), 210–19.

In Chapter 14, the approximation made is that $y_i = a_i x_i^\alpha$, where α is assumed known (α is assumed the same for all territories), and the a_i are not necessarily assumed known ($i = 1, 2, \cdots n$). The equilibrium conditions are applied to the special case $y_i = a_i x_i^\alpha$, in order to obtain formulae for the allocation in terms of $A, a_i (i = 1, \cdots n)$ and α.

The optimal allocation can be found without determining a_i, $i = 1, \cdots n$. Let e_i' be the total variable selling expense in the ith territory ($i = 1, \cdots n$) of selling x_i' articles.

$$(1) \qquad e_i' = a_i \int_o^{x_i'} x_i^\alpha dx_1 = \frac{a_i x_i'^{\alpha+1}}{\alpha + 1}$$

for all *i*. Now:

$$(2) \qquad e_i' x_i' = \frac{a_1 x_i'^\alpha}{\alpha + 1} = \frac{y_i'}{\alpha + 1} \cdot$$

$\alpha + 1$ is a constant, and at equilibrium (or maximal sales)

$y_1 = y_2 \cdots = y_n$; therefore, at the desired equilibrium, we have the following:

$$\frac{e_1}{x_1} = \frac{e_2}{x_2} = \cdots \frac{e_n}{x_n} .$$

e_i represents expenditure in the ith territory at optimal conditions. Thus, the ratio of selling expenses to sales is constant, the same for all territories.

Now to figure out the amounts of money that should be allocated, assuming that the variable selling expense in territory i was e_i' and that the sales were x_i' during the past period. Assuming $y_i = a_i x_i^\alpha$, a_i must be determined:

$$a_i x_i'^\alpha = (\alpha + 1) \frac{e_i'}{x_i'}$$

for all *i*, or

$$a_i = \frac{(\alpha + 1)\, e_i'}{x_i'^{\alpha+1}} \; i = 1, 2, \cdots n .$$

Therefore, at equilibrium, $y_1 = y_2 = \cdots = y_n$, and

$$(3) \qquad a_1 x_1^\alpha = a_2 x_2^\alpha = \cdots = \alpha_n x_n^\alpha .$$

Since

$$e_i = \frac{a_1 x_1^{\alpha+1}}{\alpha + 1} \quad \text{and} \quad A = \sum_{i=1}^{n} e_i ,$$

A may be expressed by x_i, $i = 1, \cdots n$. Now, from Equation 3 it is clear that $x_2, x_3, \cdots, x_n$ can be expressed as functions of x^1, or more generally any x_i, $1 \leq i \leq n$, can serve as a starting point, and the other x's can be expressed in terms of it.

For example, $a_i x_i^\alpha = a_1 x_1^\alpha$ at equilibrium,

$$\therefore\; x_i = \left(\frac{a_1}{a_i}\right)^{\frac{1}{\alpha}} x_1 .$$

Therefore:

$$A = e_1 + e_2 \cdots + e_n = \frac{a_1 x_1^{\alpha+1}}{\alpha+1} + \frac{a_2 x_2^{\alpha+1}}{\alpha+1} + \cdots + \frac{a_n x_n^{\alpha+1}}{\alpha+1} .$$

Also:

$$e_i = \frac{a_i x_i^{\alpha+1}}{\alpha+1} = \frac{a_i \left(\frac{a_1}{a_i}\right)^{\frac{\alpha+1}{\alpha}} x_1^{\alpha+1}}{\alpha+1}$$

$$= \left(\frac{a_1}{a_i}\right)^{\frac{1}{\alpha}} \frac{a_1 x_1^{\alpha+1}}{\alpha+1} = \left(\frac{a_1}{a_i}\right)^{\frac{1}{\alpha}} e_1 .$$

Finally:

$$A = e_1\left(1 + \left(\frac{a_1}{a_2}\right)^{\frac{1}{\alpha}} + \left(\frac{a_1}{a_3}\right)^{\frac{1}{\alpha}} + \cdots + \left(\frac{a_1}{a_n}\right)^{\frac{1}{\alpha}}\right),$$

or

$$e_1 = \frac{A}{1 + \sum_{i=2}^{n} \left(\frac{a_1}{a_i}\right)^{\frac{1}{\alpha}}} ,$$

or, since

$$\left(\frac{a_1}{a_1}\right)^{\frac{1}{\alpha}} = 1 ,$$

(4)
$$e_1 = \frac{A}{\sum_{i=1}^{n} \left(\frac{a_1}{a_i}\right)^{\frac{1}{\alpha}}} .$$

By the same reasoning

$$e_i = \frac{A}{\sum_{j=1}^{n} \left(\frac{a_i}{a_j}\right)^{\frac{1}{\alpha}}} \quad \text{for any } i = 1, \cdots, n.$$

These are the formulas that are required. They express e_i, the money to be allocated in the ith district, as a function of the total selling appropriation A, the constants $a_i (i = 1, \cdots n)$ and the exponent α. All these numbers are assumed known, therefore the expenditure in the ith district can be computed from the formula.

In order to justify the method to the reader the following derivation of the equilibrium conditions is included. Using the notation of the text, let $f_i(x_i)$ be the incremental expenses entailed by selling x_i units in territory i, $i = 1, \cdots, n$.

Let

$$F(x_1, \cdots, x_n) = \sum_{i=1}^{n} \int_{o}^{x_i} f_i(x_i) dx_i - A = 0 \tag{1}$$

where A is the total selling appropriation available. The sum

$$\sum_{i=1}^{n} x_i = x_1 + x_2 + \cdots + x_n$$

is to be maximized. To do this, maximize the following:

$$h(x_1, x_2, \cdots, x_n, \lambda) = \sum_{i=1}^{n} x_i + \lambda F(x_1, \cdots, x_n)\,. \tag{2}$$

In the derivation, the assumption is made that the x_i are independent of one another. This amounts to assuming that the quantity of sales in any one territory does not affect the quantity of sales in any other territory. Differentiating Equation 2 partially with respect to each of the x_i for $1 \leq i \leq n$, yields n equations:

$$\left.\begin{aligned} \frac{\delta h}{\delta x_1} &= 1 + \lambda \frac{\delta F}{\delta x_1} = 0 \\ \frac{\delta h}{\delta x_2} &= 1 + \lambda \frac{\delta F}{\delta x_2} = 0 \\ &\cdots \\ &\cdots \\ \frac{\delta h}{\delta x_n} &= 1 + \lambda \frac{\delta F}{\delta x_n} = 0 \end{aligned}\right\} \tag{3}$$

By equation (1), differentiating:

$$\left.\begin{aligned} \frac{\delta F}{\delta x_1} &= f_1(x_1) \\ \frac{\delta F}{\delta x_2} &= f_2(x_2) \\ &\cdots \\ &\cdots \\ \frac{\delta F}{\delta x_n} &= f_n(x_n) \end{aligned}\right\}\,. \tag{4}$$

Assume that $\frac{\delta F}{\delta x_1} \neq 0$, which means that there is an actual selling expense in the *i*th territory for every item.

Then by (3) for any *i*:

$$1 + \lambda \frac{\delta F}{\delta x_i} = 0 \qquad (i = 1, \cdots, n).$$

By (4)

$$1 + \lambda f_i(x_i) = 0\,,$$

or

$$\lambda = \frac{1}{-f_i(x_i)} \qquad (\lambda \text{ is constant}),$$

so

$$-\frac{1}{f_i(x)} = -\frac{1}{f_j(x)}.$$

Thus, for any of *i* and *j*, the general maximizing condition is:[2]

$$f_1(x_1) = f_2(x_1) = \cdots = f_n(x_n)\,.$$

---

[2] The second-order conditions for a maximum have been ignored. These will create no trouble if, as in the equation $y_i = a_i x_i{}^a$, incremental selling expenses are everywhere increasing. Another complicating possibility would be the existence of fixed selling expenses separable to individual markets which here have been assumed away.

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